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*Illustrated.


**Progress in Car Construction**

As was to be expected, the returns for the cars built during 1913 show that the railways of the country have practically stopped ordering wooden cars for passenger train service. Very few all-wood passenger train cars were ordered during the year, and of these almost all were for Canadian roads. In the United States all-steel construction predominates, the conditions obtaining in regard to the use of this class of car in passenger service being thoroughly covered in the article on the "Steel Passenger Train Car Situation," published in the *Railway Age Gazette*, November 21, 1913, page 947. While gas lighting has been specified for a considerable number of cars, the general tendency seems to be toward the use of electricity for this purpose, especially in the case of coaches. While there is a probability of considerable development in all-steel box cars during 1914, no great numbers of this type of car were ordered during the past year. There is, however, a very marked increase in the use of steel frame box cars, and in ordering this type most of the roads appear to favor the structural steel frame with inside horizontal sheathing. The Norfolk & Western, after experimenting with a 90-ton capacity gondola mounted on six-wheel trucks, has ordered 750 of these cars for heavy coal service. In a considerable percentage of the freight equipment ordered, spring draft gear has been specified. There is abundant evidence that with present day operating conditions a friction gear is needed to absorb the severe shocks, but judging from the figures for the past year there are still a number of railway men who fail to appreciate this.

**Progress in Block Signaling**

The increase in automatic block signaling on the railways of the United States during the past 12 months amounts to over 3,800 miles of road, or about twice the total increase in the last preceding calendar year; a truly significant evidence of intelligent progress on many roads. The figures of our table are not to be taken as exact, for the reason that a few roads, two of them prominent, have not yet sent us their reports; but the general view of the situation afforded by the table is substantially accurate. The total of all block signaling, both automatic and manual, while about 9,000 miles more than was shown in our last issue for the year 1912, is only about 3,000 miles greater than was shown by the government for that date. The explanation of this is to be found in the large discrepancies which appear in the reports of more than a score of roads. However, the totals for manual blocking have a great deal less meaning than those for automatic, for the reason that on a large mileage the space interval is enforced intermittently or imperfectly. The full meaning of the figures can be known only after the *quality* of the block signaling has been explained. With automatics, on the other hand, good practice is the rule, and the meaning of the statistics is clear to all. And the movement to substitute the automatic for the manual system, based on the greater value to be got out of the investment—increased capacity of road and enhanced safety—has now gathered such momentum that continuous progress may be confidently expected. In spite of the financial anxieties which are now felt in the managing offices of many roads, the plans for new signaling to be introduced in 1914 aggregate probably as large a mileage of road as was shown one year ago. The companies which introduce block signaling because of a thorough appreciation of its value are increasing in number, while those which only follow the fashion, or act from fear of the law makers, are rapidly decreasing. The Harriman Lines continue to maintain their leading position, with the impressive aggregate of 5,922 miles of road equipped with automatic signals.

**Tendencies in Locomotive Construction**

An analysis of the statistics of locomotives ordered during 1913 develops two facts. First, that the superheater is being applied to practically all locomotives, except those of the smallest size, and second, that the big engine is principally in demand. The superheater has evidently proved its advantages to every one and this year, nearly 79 per cent. of the new steam locomotives of moderate and large size were equipped with it. Last year the percentage was 63 for the same classes. Nearly 63

per cent. of the total number of locomotives ordered this year were of the Consolidation, Mikado or Pacific type, and over 18 per cent. were of the switching types. It is somewhat surprising to find that the Consolidation is in the lead of all other types this year and forms over 23 per cent. of the total. While it is known that new possibilities are being discovered in this type it is hardly believed that they have been sufficiently demonstrated to bring this class to the position of greatest general popularity. Further analysis shows this to be actually the case since, of the 823 ordered during the year, 435 were for the Pennsylvania, leaving less than 400, or but little over 11 per cent. of the total, for all other roads. Last year the Mikado type formed 29 per cent. of the total number ordered and the Consolidation 19 per cent., but this year the Mikado is below the Consolidation and forms less than 23 per cent. of the total. Over 16 per cent. were of the Pacific type this year, while last year but 13.2 per cent. were of this type. The 10-wheel type seems to hold its place at about 8 per cent., but the Atlantic type, due entirely to the development on the Pennsylvania, has risen from obscurity for new power to 1.32 per cent. of the total this year. There were distinctly fewer Mallets ordered and the percentage dropped from 3.7 per cent. last year to but slightly over 2 per cent. this year. While these statistics give very interesting information in connection with the number of locomotives ordered, they do not, in any way, indicate the remarkable improvements that have been made in the design and capacity of locomotives during the year. These features were fully discussed in the article which appeared on page 1215 in last week's issue. It was there shown that not only are the larger types forming the principal part of the orders, but there is a general increase in the size of each type. The success of the mechanical stoker is beginning to show its effect on the size of the average locomotive and no doubt next year will see a continued increase in capacity, if not of weight, in the different types. It is quite possible, however, that the percentage of the total formed by the larger types will show a decrease in the future due to the ordering of more engines of the smaller sizes and lighter weights which will be suited to certain classes of light service and will give the maximum economy now generally associated only with the larger sizes.

## RAILWAY CONSTRUCTION IN 1913

THE amount of new railway mileage built in any year is an approximate indication of the condition of the railway business in that period. When traffic is heavy and earnings are large the roads expand to reach new territories and construct additional main tracks to handle properly the increasing business. When traffic falls off, new construction work is the first to suffer the effects of retrenchment. Cars and locomotives must be built and maintained to handle traffic, but new feeder lines are not essential to the operation of the existing properties. It is true that statistics of new mileage completed lag several months behind business conditions. For this reason statistics of work authorized or under construction would, if available, give a more exact indication; but it is impossible to secure such statistics with any degree of accuracy.

As shown elsewhere in this issue, the mileage of new lines completed in 1913 is practically the same as that of each of the last two years. This continued low figure of construction mileage bears out the frequently repeated statement that railway men and the investing public are hesitating more and more before venturing the construction of new lines into undeveloped territory in the face of the present wave of agitation and restrictive legislation. The effect of such legislation is shown in the retardation of railway construction in Texas and Oklahoma, two states in which railway legislation has been most violent and which are greatly in need of railway development. The amount of road constructed in Texas has declined from 414 miles in 1911 to 336 miles in 1912, with a slight increase to 356 miles in 1913, while the mileage built in Oklahoma decreased from 242 miles in 1912 to 34 miles in 1913.

The increase in the amount of second track built indicates that the railways are augmenting their facilities to handle properly the traffic originating on the lines already built. As long as the present conditions continue the effect cannot be other than that shown by the decreasing construction—the postponing of the development of pioneer lines and of new territory now without railway facilities.

A study of the distribution of the new mileage by states shows that the new construction of the last year was confined very largely to the south and far west. Illinois and Michigan were the only states north of the Ohio river and east of the Mississippi river in which over 100 miles of new line was built. Less than 1,000 miles of new road was built east of the Mississippi river in 1913, and of this over 654 miles was south of the Ohio river. All of the states in which no new mileage was built are along the Atlantic seaboard north of the Potomac river. On the other hand, over 1,166 miles of new road was built west of Denver.

The decrease in the mileage of new lines under construction from 2,500 miles on January 1, 1912, to 1,522 on January 1, 1913, is in accordance with the impression prevailing generally among construction engineers and contractors. Only one or two large contracts have been let since July 1, and the outlook is not promising for a busy year in 1914. The small amount of new line now under construction indicates that the mileage built in 1914 will show a further decrease, unless conditions change radically in the spring. With the approaching completion of the National Transcontinental and the Pacific coast extensions of the Canadian Northern and the Grand Trunk Pacific, a similar decrease from the present high figures may be expected in Canada. This decrease is foreshadowed by reports showing that 1,568 miles of new lines are now under construction as compared with 3,500 one year ago.

Most significant is the fact that the new mileage built in Canada in 1913, was almost as great as that built in the United States. Practically since the construction of the steam railway became a factor in the development of the country, more miles of railroad have been constructed in the United States than in any other country until now 38 per cent. of the railway mileage of the world is in the United States. In view of the vast territory still without railway facilities in Canada, and the rapid settlement of the Canadian Northwest, it would not be surprising if Canada should acquire for several years to come, the lead which it has now so closely approached.

## A RETROSPECT AND A PROSPECT

THE year 1913 was not a satisfactory one for the railways of the United States. As shown by Professor Dixon's excellent article in another column of this issue, there was an increase in gross earnings during most of the year. But while gross earnings were increasing operating expenses and taxes were increasing yet more in proportion. Furthermore, during the closing months of the year gross earnings began to decline. Consequently when all the figures for 1913 are available they will show that the railways had a substantially smaller net operating income than in 1912.

The trend of developments has been due to various causes. The crops raised in 1912 were large. This and other causes produced a marked revival of industry in the fall of 1912. A substantial increase in railway traffic resulted, the effects of which were felt far into the calendar year 1913. On the other hand, the crops raised in large parts of the country in 1913 were small, and in some sections were practically failures. This, of course, reduced railway traffic, and together with other causes produced a depression in business which further reduced traffic. Finally, the winter thus far has been a very open one. In consequence, the retail sales of merchandise and coal have been relatively small, resulting in a curtailment of the movement of various classes of commodities.

The entire country is suffering from the general depression in business. Because of the fact that not only has their gross business recently been declining, but that their operating ex-

penses and taxes have increased both when business was heavy and when it was light, the railways have been, and are, suffering more than other classes of concerns. These circumstances have made it necessary to retrench wherever practicable, and the effect of this policy is reflected in the statistics which we publish elsewhere in this issue regarding the mileage of new railways built and the numbers of cars and locomotives ordered during 1913. Both the new mileage built and the orders for equipment placed have been small. There have been increases in expenditures, but these have consisted mainly in larger outlays for labor caused by increases in the wages of labor. These increases in wages, which have been occurring constantly for several years, included several advances in 1913, including those to the firemen, and the conductors and trainmen of the eastern railways, which were made as a result of arbitration awards rendered under federal law.

The conditions which have been developing in the railway business during recent years, and which became acute in 1913, promise to cause important developments in 1914 and subsequent years. They led the eastern lines to apply last year to the Interstate Commerce Commission for permission to advance their freight rates 5 per cent. The railways have given great publicity to the facts about their business, and there can be no question that public opinion is more friendly and sympathetic toward them than it has been at any time in many years. The evidence which has been presented to the Interstate Commerce Commission regarding the needs of the railways is of a very persuasive character, and there are strong indications that the commission, as well as the public, is becoming convinced that the time has arrived when the railways must be allowed to charge higher rates. Commissioner Prouty, together with the state commissions of some of the New England states, already has agreed to advances in rates on the Boston & Maine.

The Interstate Commerce Commission and the public evidently feel, however, that if the railways are to be allowed to charge higher rates and enjoy larger revenues some means must be adopted for rendering certain that the larger resources placed at their command will be used for no purpose except to make improvements in their properties and to pay return on additional investment wisely and honestly made. Therefore, the commission in its annual report has asked Congress to give it authority, after investigation, to make orders respecting the construction, maintenance and operation of the railroads, and also to give it control and supervision over railway capitalization. Just what the attitude of railway managers toward these propositions will be is uncertain. It is probable that no harm, and much good would result from giving the Interstate Commerce Commission substantially the same power to regulate operation that it has to regulate rates. The *Railway Age Gazette* long has advocated legislation by Congress to require the general use of the block system. Probably, however, it would be better if Congress would give the commission authority which would enable it to require such block systems to be installed as the operating and traffic conditions of the various roads demand and their financial strength makes practicable, than that Congress should deal directly with the matter. Somewhat the same thing may be said regarding regulation of other features of operation, such as the provision of steel passenger train equipment, the number of men to be employed on trains, and so on. It seems reasonable to believe that if the commission possessed and exercised more authority to make orders regarding the construction, maintenance and operation of railways it would come to have a broader and more lively appreciation of their physical conditions and needs.

As to the regulation of railway security issues, most railways are so financed as to afford no just reason for the intervention of public authorities to protect investors and the public. Unfortunately, however, there have been and continue to be practices in connection with the financing of some railways which give great force to the demand for public regulation of railway securities. Railway managers recognize this fact. In the annual review number of the *Railway Age Gazette* for 1911 a number of railway officers answered the question, "Do you favor regulation of the issuance of railway securities? If so, by the federal or the state authorities?" and a large portion of them expressed themselves in favor of some federal regulation, while some indicated that they were in favor of such regulation as was suggested by the report of the Hadley Railroad Securities Commission. Within the last few days the Chicago *Tribune* has been publishing expressions from a number of railway presidents on the same subject, and these indicate that while railway managers deprecate radical regulation of securities many very prominent ones believe a carefully drawn and conservative measure might do good.

It seems highly probable, therefore, that during the present session of Congress there will be legislation giving the Interstate Commission some authority to regulate railway construction, maintenance and operation, and the issuance of securities. The commission already is engaged in making a valuation of railways. Once legislation giving the additional authority now sought by it is passed, it would seem that every phase of railway management will have been made subject to its control. What will follow? The *Railway Age Gazette* is optimistic on that score. It believes that the increased authority and responsibility will make the commission more and more fair and careful. Of course, if regulation is a failure, government ownership, regarding which there has been a renewal of discussion this year, will be the result. But the renewed discussion of government ownership indicates that public sentiment is still opposed to it. Many of the publications and public men that have been most severe in their criticisms of American railway management are, nevertheless, expressing their opposition to government ownership. The very fact that once the commission's authority to regulate has been made complete there will remain no alternative to making regulation fair and constructive except to turn to government ownership, probably will tend to cause regulation to become at once more effective, more just and more beneficial.

So, while 1913 was not a year to inspire optimism among railway men, there seems reason to hope that it may have marked an important turning point in the history of the railways. Certainly it did mark a most significant and extraordinary change in the attitude of the press and the public toward the railways and their managements; and with the press and public with them, public men will not long be against it.

## THE RAILROAD SECURITY MARKET IN 1913

UNTIL within the last 60 days there have been in the year 1913 almost no issues of railroad securities for the purpose of raising new capital as distinguished from refunding maturing issues of securities except the issues of the St. Paul and of the subsidiary of the Chicago & North Western. There was almost no market for long term railroad bonds during 1913 up to November. A railroad company which could have sold a given security in 1912 on a basis to yield the investor 4¼ per cent. would probably have had to sell identically the same security in 1913 at a price enough lower so as to yield the investor from 4½ to 4¾ per cent. on his investment. In other words, with the same security to offer, railroads had to pay almost one-half of 1 per cent. higher for money in 1913 than in 1912. This is well illustrated by the issue of $30,000,000 general mortgage 4½ per cent. bonds by the Chicago, Milwaukee & St. Paul early in April. The mortgage securing these bonds is a strong one and previous to the issue of the $30,000,000 4½ per cent. bonds there were outstanding $48,841,000 4 per cent. bonds and $8,950,000 3½ per cent. bonds. A month earlier the 4 per cent. bonds were selling on the New York Stock Exchange at 97½, at which price they yielded the investor 4.116 per cent. The new issue of 4½ per cent. bonds was offered to

the public at 99½, at which price they yielded the investor 4.52 per cent. This is a difference of about 0.40 per cent. in yield; and notwithstanding this difference, the offering of these bonds was by no means at once successful. The 4½ per cent. bonds are now quoted on the New York Stock Exchange, however, in the neighborhood of par.

The cause of this bad bond market was world-wide and the United States was better off than either Europe or England, and the market for railroad bonds of the very highest class felt the effects of these conditions less than did the markets for junior railroad bonds and industrial and public service corporation bonds. The Balkan war had a drastic effect on European money markets. European investors and English investors poured back into the United States securities which they had bought previously, and whereas under normal conditions Europe and England may be expected to take from one-quarter to one-third, or even one-half, of an issue of American high grade railroad bonds, in 1913 not only could practically none of such an issue be sold in Europe, but the great bulk of similar securities which were pressing for sale by European investors in America spoiled the possibilities of the market in this country for new securities.

There was no actual money panic in 1913, but conditions very closely approximated such a crisis. The borrower, unable to make a new loan, did his best to renew his outstanding loans; the creditors, being forced to renew rather than accept payment, did not have funds for investment; and so the familiar cycle of money stringency, contraction of credits and bad bond market ran through the regular course that it has followed in other times of similar depression. To meet this situation railroad managements were forced to issue short term notes, to renew short term notes which they had issued in 1910, 1911 and 1912 in the hopes of being able to refund them with long term bonds, and to sell equipment trust certificates.

Early in the year $10,000,000 Kansas City Terminal 4 per cent. bonds, which were guaranteed principal and interest by the roads which will use the Kansas City Terminal and included such strong companies as the Atchison, Topeka & Santa Fe, were offered at 95, at which price they yielded the investor 4¼ per cent. This offering, however, was not typical, and the sale by the New York Central of $12,540,000 4½ per cent. equipment trust certificates at prices to yield the investor about 4.65 per cent., and the sale by the Pennsylvania Railroad of 4½ per cent. equipment trust certificates some months later at prices to yield the investor about 5 per cent., are good indexes of the prices which railroads had to pay for money for such absolutely necessary capital purposes as new equipment. The New York Central also issued $10,000,000 5 per cent. one-year notes, the offering price being 99½, at which price they yielded slightly less than 5½ per cent. An example of the price which weaker roads had to pay for their money is the sale by the Missouri, Kansas & Texas of $19,000,000 two-year 5 per cent. notes for refunding purposes, the offering price to the public being 98, at which price they yielded the investor about 6⅛ per cent. The Peoria & Northwestern and the St. Paul, Minneapolis & Omaha, both subsidiaries of the Chicago & North Western, were exceptions to the general rule, in that they put out small issues of bonds for new capital and the sale was at prices which carried a comparatively low yield to the investor.

The North Western subsidiary bond sales were quite successful; the Illinois Central equipment trust note issue was fairly successful; the equipment trust note issues of the small roads and of roads with poor credit were also fairly successful; but there was a marked tendency to require a greater margin between the amount advanced under the equipment trust notes and the cost of the equipment purchased. In other words, where previously the bankers had been satisfied with 10 per cent. paid in cash and were willing to advance the other 90 per cent., they now demanded 15 or even, as in the case of the Missouri, Kansas & Texas, 20 per cent. of the price of equipment to be paid in cash.

On the other hand, in December the Lehigh Valley sold $10,000,000 4½ per cent. general consolidated mortgage bonds, the price to the public being 93¼, yielding 4.83 per cent. on the investment, and this sale was understood to be highly successful. The small issue, $2,500,000 of the Alabama Great Southern first consolidated mortgage 5 per cent. bonds, arrangements for the sale of which were made in November, was offered to the public at a price to yield 5.10 per cent. on the investment and was not particularly eagerly taken by investors.

There has been a considerable change in the attitude of investors toward the purchase of railroad securities. They are in general more particular as to the terms of the mortgage securing the issue of bonds and less likely to consider simply the name and reputation of the railroad company issuing the bonds or the bankers making the public offering. The widespread discussion of questions connected with the issuance of railroad securities, valuation of roads, regulation of rates, etc., and of government ownership has had one beneficial effect, in that it has stimulated the interest of the investor and tended to make him more carefully investigate the statutes of railroad securities which are offered to him.

With the end of the old year there is a prospect of a materially improved bond market, especially for high grade, so-called gilt edged mortgage bonds. The prospects seem to be that the stronger railroads will be able to get money to meet their requirements in the first half of 1914 at a fairly reasonable price, and that as these bonds are acquired by the ultimate investor, a market will be made for junior securities of the strong companies and for securities of the less strong companies.

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## RECEIVERSHIPS AND FORECLOSURE SALES

THERE was only one important system of roads put into the hands of receivers in 1913, and while some progress was made toward perfecting reorganization plans for some of the larger roads which were being operated under the direction of receivers, there were no large roads sold under foreclosure. The difficulty of raising new capital even for prosperous going railroad concerns easily accounts for the fact that no large railroad company was reorganized and taken out of the hands of a receiver through foreclosure sale or otherwise. The state of the money market was an important direct contributing cause of the receivership of the St. Louis & San Francisco, and of its leased line, the Chicago & Eastern Illinois, and of the various subsidiaries, the most important of which were the New Orleans, Texas & Mexico and the St. Louis, Brownsville & Mexico. The parent company—the St. Louis & San Francisco—was placed in the hands of B. L. Winchell, its president, and Thomas H. West, of the Union Trust Company of St. Louis, on May 27, 1913, on the sudden application of creditors. The receivership of the Chicago & Eastern Illinois followed, due, of course, to the inability of the Frisco to pay the guaranteed dividends of 10 per cent. on the leased line company's stock, and separate receiverships were established for various subsidiaries within the next few days, details of which are shown in the accompanying table. The receivership proceedings of the Frisco were, it is supposed, the result of a decision of B. F. Yoakum and his St. Louis associates to try to retain their control and preserve the interests of the stockholders by being the first to invoke the court's aid. The decision followed upon the refusal of Speyer & Company, of New York, and of other eastern bankers to provide for $2,250,000 maturing two year notes except on conditions which Mr. Yoakum and his associates would not accept.

The underlying causes of the Frisco receivership may be classed together as different manifestations of working out of the ambition on the part of those who had control of the property to develop a railroad system in the southwest without adequate credit, and by the use of a company—the St. Louis &

San Francisco—already top heavily capitalized and with the burden of a guarantee on its Chicago & Eastern Illinois stock that was too heavy for it to carry. The Chicago & Eastern Illinois, valuable railroad property as it is, was not able to earn the 10 per cent. dividend which was provided for in the lease and the deficit was, of course, made up out of the Frisco earnings. The Frisco itself was, like other roads in the southeast, made up of various pieces, some of which were in far better physical shape than others. The property was in need of intensive development instead of which its credit was used for the financing of extensive development. Mr. Yoakum acknowledges that he was personally interested in the building of new lines which, after they were built, were sold to the St. Louis & San Francisco at a considerable profit, at least on paper, to the promoters; and in addition to this, the method of sale of Frisco securities that had been adopted by Mr. Yoakum and his board of directors was a peculiarly dangerous one, although adopted with the probably sincere purpose of getting the very best terms for money which were obtainable. In times of plentiful money Mr. Yoakum's plan of shopping round from one banking house to another would possibly have worked out with a fair degree of success, but in a time such as was encountered in 1913, when there was a universal shrinkage of credit all over the world and a disposition on the part of both individuals and bankers to hoard their resources, the railroad company which had no recognized bankers who were under obligation to carry it over periods of hard times was naturally the one most liable to go to the wall. This was what happened in the Frisco case.

The next largest road after the Frisco system, and the only other one of any importance, that went into the hands of receivers in 1913 was the Missouri, Oklahoma & Gulf. This line was promoted by a Boston banking house and its securities were largely placed either in Boston or in France. Boston interests, apparently, rather lost heart in their enterprise more than a year or two ago, and the property was being carried largely by French banking interests. The failure in Paris of one of the banks interested in the property was given as the immediate cause of the receivership. An attempt was made, however, to raise new capital in New York before the receivership took place but was unsuccessful. It had been necessary to practice rather strict economy in the maintenance of the property for the last two or three years, so that its physical condition was not very high class, and on the greater part of its business it had to compete with older and better established and better maintained roads which could offer superior service. Time only will prove whether the road was justified at all in an economic sense.

The foreclosure sale of the different parts and divisions of the Detroit, Toledo & Ironton was the one definite step that was made during the year toward the final reorganization of any important American railroad property. The Wabash situation has not changed to any great extent except that the holders of Wabash-Pittsburgh Terminal securities are, it is understood, beginning to come to a realization of their own position and the necessity for their accepting the brunt of the reorganization of their own property. A plan was presented for the reorganization of the Wheeling & Lake Erie and the Wabash-Pittsburgh Terminal which, however, required so much of a sacrifice on the part of the Wabash Railroad Company's security holders that it was never carried out.

The accompanying tables show the mileage and capitalization of the steam roads put into receivers' hands in 1913, and also similar figures for roads sold under foreclosure.

RECEIVERSHIPS ESTABLISHED IN 1913.

| Name of Company. | Mileage. | Funded Debt. | Stock. |
|---|---|---|---|
| Arkansas, Louisiana & Gulf | 61 | $1,230,000 | $1,231,100 |
| Boyne City, Gaylord & Alpena | 90 | 175,000 | 501,200 |
| Chicago & Eastern Illinois | 1,275 | 61,645,000 | 25,772,600 |
| Greenville & Knoxville | 24 | 460,000 | 260,000 |
| Iowa & Omaha Short Line | 12 | 175,000 | ..... |
| Kansas City, Ozark & Southern | 14 | ..... | 300,000 |
| Louisiana & Northwest | 121 | 2,180,000 | 2,300,000 |
| Manistee & Grand Rapids | 77 | a265,000 | 450,000 |
| Missouri, Oklahoma & Gulf | 247 | 8,261,000 | 8,261,000 |
| New Jersey & Pennsylvania | 25 | 200,000 | 400,000 |
| New Orleans, Mobile & Chicago | 623 | 12,699,500 | 8,075,300 |
| *St. Louis & San Francisco | 6,262 | 295,499,358 | 41,985,762 |
| St. Louis & San Francisco. Kansas City, Fort Scott & Memphis. Kansas City, Memphis & Birmingham. | | | |
| Fort Worth & Rio Grande. Brownsville North & South. Paris & Great Northern. Birmingham Belt. | | | |
| New Orleans, Texas & Mexico. Beaumont, Sour Lake & Western. Orange & Northwestern. | | | |
| St. Louis, Brownsville & Mexico. Rio Grande Railway. | | | |
| Salt Lake & Mercur | 13 | 250,000 | 300,000 |
| Scott City Northern | 51 | 825,000 | 500,000 |
| Tennessee Railway | 48 | 1,129,000 | 1,000,000 |
| Valdosta, Moultrie & Western | 42 | 300,000 | 100,000 |
| Williamsville, Greenville & St. Louis | 35 | 525,000 | 525,000 |
| Total, 17 | 9,020 | 385,818,858 | 91,961,962 |

a The stockholders, it is understood, bought the outstanding bonds in 1907, but the mortgage securing these bonds was not canceled.

*This includes all of the auxiliary and subsidiary companies of the St. L. & S. F. going into the hands of receivers with the exception of the Chicago & Eastern Illinois, which is shown in the table separately. There were separate receiverships for each one of the groups of roads shown.

FORECLOSURE SALES IN 1913 OF STEAM ROADS.

| Name of Company. | Mileage. | Funded Debt. | Stock. |
|---|---|---|---|
| Buffalo & Susquehanna R. R. | 265 | $9,370,000 | [1]$4,000,000 |
| Cassville & Western | 5 | ..... | 50,000 |
| Denver, Northwestern & Pacific | 215 | 10,940,000 | 10,940,700 |
| Detroit, Toledo & Ironton | 396 | 17,024,400 | 25,000,000 |
| Lackawanna & Wyoming Valley | 23 | [2]5,000,000 | [2]1,848,750 |
| *Lewisburg & Tyrone | 85 | 489,000 | 1,200,000 |
| Total, 6 | 1,159 | 42,823,400 | 43,340,450 |

[1]In addition there was 4,656,900 common stock owned by the B. & S. Railway Co.

[2]All of these securities are now deposited as collateral for outstanding bonds of the Scranton & Wilkes-Barre Traction Corporation, which is the holding company for the railroad.

*Although this road, which is a subsidiary of the Pennsylvania R. R., was sold under foreclosure for technical reasons, it was never in receiver's hands, and does not therefore ever appear in our records of receiverships.

SUMMARY OF FORECLOSURE SALES IN 38 YEARS.

| Year. | No. of roads. | Miles. | Bonds and stocks. |
|---|---|---|---|
| 1876 | 30 | 3,840 | $217,848,000 |
| 1877 | 54 | 3,875 | 198,984,000 |
| 1878 | 48 | 3,906 | 311,631,000 |
| 1879 | 65 | 4,909 | 243,288,000 |
| 1880 | 31 | 3,775 | 263,882,000 |
| 1881 | 29 | 2,617 | 137,923,000 |
| 1882 | 16 | 867 | 65,426,000 |
| 1883 | 18 | 1,354 | 47,100,000 |
| 1884 | 15 | 710 | 23,504,000 |
| 1885 | 22 | 3,156 | 278,394,000 |
| 1886 | 45 | 7,687 | 374,109,000 |
| 1887 | 31 | 5,478 | 328,181,000 |
| 1888 | 19 | 1,596 | 64,555,000 |
| 1889 | 25 | 2,930 | 137,815,000 |
| 1890 | 29 | 3,825 | 182,495,000 |
| 1891 | 21 | 3,223 | 169,069,000 |
| 1892 | 28 | 1,922 | 95,898,000 |
| 1893 | 25 | 1,613 | 79,924,000 |
| 1894 | 42 | 5,643 | 318,999,000 |
| 1895 | 52 | 12,831 | 761,791,000 |
| 1896 | 58 | 13,730 | 1,150,377,000 |
| 1897 | 42 | 6,675 | 517,680,000 |
| 1898 | 47 | 6,054 | 252,910,000 |
| 1899 | 32 | 4,294 | 267,534,000 |
| 1900 | 24 | 3,477 | 190,374,000 |
| 1901 | 17 | 1,139 | 85,808,000 |
| 1902 | 20 | 693 | 39,788,000 |
| 1903 | 13 | 555 | 15,885,000 |
| 1904 | 13 | 524 | 28,266,000 |
| 1905 | 6 | 679 | 20,307,000 |
| 1906 | 8 | 262 | 10,400,000 |
| 1907 | 6 | 114 | 13,777,000 |
| 1908 | 3 | 138 | 2,547,000 |
| 1909 | 12 | 2,629 | 250,033,000 |
| 1910 | 17 | 1,100 | 93,660,109 |
| 1911 | 13 | 1,386 | 40,741,453 |
| 1912 | 12 | 661 | 25,910,990 |
| 1913 | 6 | 1,159 | 86,163,850 |
| Total, 38 years | 994 | 121,026 | 7,392,978,502 |

SUMMARY OF RECEIVERSHIPS FOR 38 YEARS.

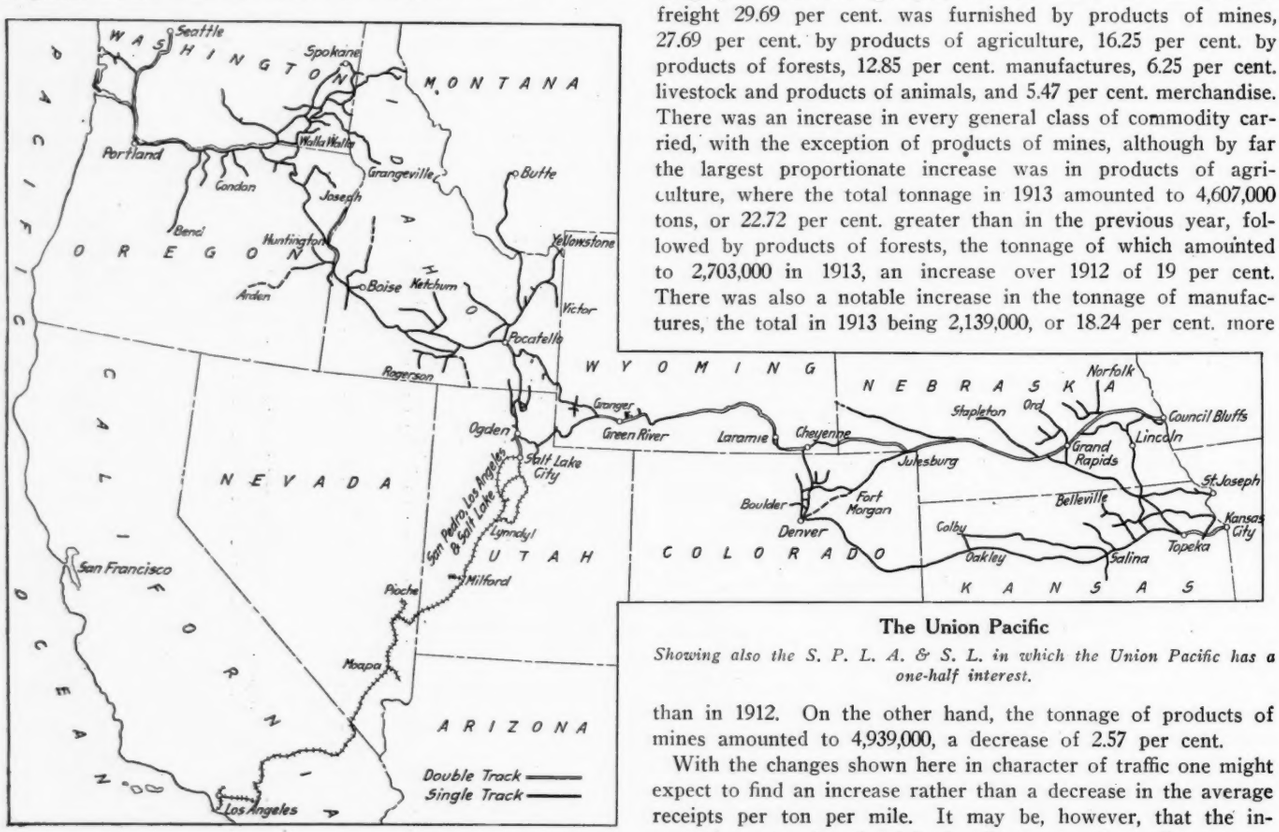
| Year. | No. of roads. | Miles. | Bonds and stocks. |
|---|---|---|---|
| 1876 | 42 | 6,662 | $467,000,000 |
| 1877 | 38 | 3,637 | 220,294,000 |
| 1878 | 27 | 2,320 | 92,385,000 |
| 1879 | 12 | 1,102 | 39,367,000 |
| 1880 | 13 | 885 | 140,265,000 |
| 1881 | 5 | 110 | 3,742,000 |
| 1882 | 12 | 912 | 39,074,000 |
| 1883 | 11 | 1,990 | 108,470,000 |
| 1884 | 37 | 11,038 | 714,755,000 |
| 1885 | 44 | 8,836 | 385,460,000 |
| 1886 | 13 | 1,799 | 70,346,000 |
| 1887 | 9 | 1,046 | 90,318,000 |

Summary of Receiverships for 38 Years (*Continued.*)

| | | | |
|---|---|---|---|
| 1888 | 22 | 3,270 | 186,814,000 |
| 1889 | 22 | 3,803 | 99,664,000 |
| 1890 | 26 | 2,963 | 105,007,000 |
| 1891 | 26 | 2,159 | 84,479,000 |
| 1892 | 36 | 10,508 | 357,692,000 |
| 1893 | 74 | 29,340 | 1,781,046,000 |
| 1894 | 38 | 7,025 | 395,791,000 |
| 1895 | 31 | 4,089 | 369,075,000 |
| 1896 | 34 | 5,441 | 275,597,000 |
| 1897 | 18 | 1,537 | 92,909,000 |
| 1898 | 18 | 2,069 | 138,701,000 |
| 1899 | 10 | 1,019 | 52,285,000 |
| 1900 | 16 | 1,165 | 78,234,000 |
| 1901 | 4 | 73 | 1,627,000 |
| 1902 | 5 | 278 | 5,835,000 |
| 1903 | 9 | 229 | 18,823,000 |
| 1904 | 8 | 744 | 36,069,000 |
| 1905 | 10 | 3,593 | 176,321,000 |
| 1906 | 6 | 204 | 55,042,000 |
| 1907 | 7 | 317 | 13,585,000 |
| 1908 | 24 | 8,009 | 596,359,000 |
| 1909 | 5 | 859 | 78,095,000 |
| 1910 | 7 | 735 | 51,427,500 |
| 1911 | 5 | 2,606 | 210,606,882 |
| 1912 | 13 | 3,784 | 182,112,497 |
| 1913 | 17 | 9,020 | 477,780,820 |
| Total, 38 years... | 754 | 145,176 | 8,262,453,699 |

## UNION PACIFIC

THERE is one word of caution that should be said in connection with the splendid showing made by the Union Pacific in the fiscal year ended June 30, 1913. Neither in character of traffic, earnings, nor in the balance sheet is there reflected anything of the change which was brought about by the working out of the dissolution decree of the United States Supreme Court, with the following exceptions: There was a decrease of $1,500,000 in dividends on stock owned because the Southern Pacific dividend, due October 1, 1913, was not credited to this year's income account, as had been the practice in previous years, and there was a shift of securities from pledged to unpledged, interesting as a matter of accounting but negligible so far as the earning power and equities of Union Pacific stock* are concerned.




**The Union Pacific**

*Showing also the S. P. L. A. & S. L. in which the Union Pacific has a one-half interest.*

The Union Pacific, which term covers the 7,349 miles of road operated, and includes the Oregon Short Line, the Central Idaho, the Salt Lake & Idaho and the Oregon-Washington Railroad & Navigation, earned $91,810,000 in 1913, an increase of $7,630,000 over 1912, or 9 per cent., and the operating ratio was reduced from 57.65 per cent. to 56.74 per cent. The result was an increase of $4,020,000 in revenue after the payment of expenses, the total in 1913 being $39,608,000; and notwithstanding the loss of about $1,500,000 in other income from failure to receive Southern Pacific dividends, the company had a surplus available for dividends, after the payment of fixed charges, of $36,777,000, an increase of $2,737,000 over 1912, and after paying the regular 4 per cent. dividends on the preferred stock and 10 per cent. on the common, there was a surplus of $11,132,000 as against $8,394,000 the year before.

The increase in gross revenue was the result of an increase of 11 per cent. in freight revenue and 4 per cent. in passenger revenue. The increase in freight revenue was due to 12 per cent. greater tonnage of freight carried and an average haul of freight longer by nearly 5 per cent., more than offsetting a decrease of 3.4 per cent. in the average revenue per ton per mile. The increase in passenger revenue was due to an increase of 4.5 per cent. in the number of passengers carried and of 2.2 per cent. in the average revenue per passenger per mile, more than offsetting a decrease of 2.5 per cent. in the average passenger journey.

The Union Pacific carried in 1913 16,638,000 tons of revenue freight, and the average haul was 382 miles. Of this revenue freight 29.69 per cent. was furnished by products of mines, 27.69 per cent. by products of agriculture, 16.25 per cent. by products of forests, 12.85 per cent. manufactures, 6.25 per cent. livestock and products of animals, and 5.47 per cent. merchandise. There was an increase in every general class of commodity carried, with the exception of products of mines, although by far the largest proportionate increase was in products of agriculture, where the total tonnage in 1913 amounted to 4,607,000 tons, or 22.72 per cent. greater than in the previous year, followed by products of forests, the tonnage of which amounted to 2,703,000 in 1913, an increase over 1912 of 19 per cent. There was also a notable increase in the tonnage of manufactures, the total in 1913 being 2,139,000, or 18.24 per cent. more than in 1912. On the other hand, the tonnage of products of mines amounted to 4,939,000, a decrease of 2.57 per cent.

With the changes shown here in character of traffic one might expect to find an increase rather than a decrease in the average receipts per ton per mile. It may be, however, that the increased average length of haul reflects a much smaller proportion of very short haul traffic which took a high ton mile rate.

As has already been mentioned, expenses did not increase in proportion to the increase in business handled and in total revenue. Total operating expenses in 1913 amounted to $52,098,000, an increase of $3,564,000. Of this increase nearly $2,000,000 was in maintenance expenses and but $1,322,000 in transportation expenses. In other words, with an increase of 17 per cent. in revenue ton mileage and 1.9 per cent. in revenue passenger mileage, there was an increase of but 5.3 per cent. in transportation expenses. The following table shows the aver-

*It is not meant to imply here that there will be any radical change in the character of traffic, length of haul, earning power, etc., of the Union Pacific due to its loss of the Central Pacific, since a discussion of possible changes would, of course, be purely speculative, and it is still possible that the Union Pacific may in some way get the Central Pacific.

age of each class of operating expenses to total operating revenues:

| | 1913. | 1912. |
|---|---|---|
| Maintenance of way and structures | 12 | 12 |
| Maintenance of equipment | 11 | 12 |
| Transportation expenses | 28 | 29 |

It is, of course, in transportation expenses that we find reflected most clearly changes in operating conditions. The figures for transportation expenses taken in connection with train load and other performance figures, although not invariably a correct index of the effectiveness of the use of the plant, are some of the most helpful guides that an annual report has for forming a judgment in regard to this most interesting question. The factors that would have naturally tended to higher transportation expenses and smaller car and freight train loading, other things being equal, were, of course, the increase in revenue ton mileage hauled of 17.3 per cent., the total revenue ton mileage in 1913 being 6,283,000,000; the high price of fuel prevailing in 1913; the large increase (22.72 per cent.) in products of agriculture and in manufactures (18.24 per cent.), with a decrease (2.57 per cent.) in tonnage of products of mines. There was also an increase in rate of pay of station employees, this added expense, it is estimated, being 14.95 per cent. To in part offset the increase in revenue ton mileage there was a considerable decrease (6.4 per cent.) in ton mileage of company freight, the total ton mileage of company freight in 1913 being 1,827,000. As a matter of fact, transportation expenses totaled $26,077,000 in 1913, an increase of 5.3 per cent. over 1912. The average revenue train load was 437 tons in 1913 as against 409 tons in 1912, an increase of 6.8 per cent.; and the average tonnage, including company freight, per freight train mile was 559 tons, an increase of 1.3 per cent.

The Union Pacific is the first company, so far as we know, to include in its statistics published in the annual report figures for gross tonnage (cars and contents) per locomotive and freight train mile. These figures make it possible to form some judgment as to whether the increase in average revenue trainload was due to an increase in the effectiveness of the use of locomotives or to the fact that through changes in traffic conditions it was possible to avoid empty freight train mileage. The average gross tons per freight locomotive mile, which includes the entire tonnage back of the drawbar, was 1,052 tons in 1913 and 1,041 tons in 1912, an increase of about 1 per cent.; and the average gross tonnage per freight train mile was 1,203 tons in 1913 and 1,186 tons in 1912, an increase of about 1.4 per cent. The percentage of loaded to total car miles was 73.23 per cent. in 1912, and the average tonnage, including company freight, per loaded car mile was 22.81 in 1913 and 22.79 in 1912. These comparisons point strongly to the conclusion that the Union Pacific did succeed in bettering its own previous high record for effective use of the transportation plant.

As has been the policy of the Union Pacific for a number of years, maintenance expenditures were in 1913 on a liberal scale. Mainfenance of way and structures cost $10,689,000, as against $9,595,000 in 1912; this is an increase of 11.4 per cent. The average amount spent per mile of all track, excluding sidings and switch tracks, was $1,295 in 1913 and $1,208 in 1912. Of the increase of a little over $1,000,000 in total maintenance of way expenses, $181,000, it is estimated, is due to the increase in hourly rates of pay on account of scarcity of skilled labor.

Maintenance of equipment cost $10,694,000 in 1913, as against $9,812,000 in 1912, an increase of 9 per cent. The Union Pacific was probably still feeling in 1913 the effects of the strike of shopmen in 1911, and the company also condemned, and therefore charged to expenses the additional cost, less salvage, of a considerably larger number of cars and locomotives in 1913 than in 1912. The average cost of repairs and renewals per locomotive in 1913 was $4,052, and in 1912, $3,724; of passenger train cars, $926, and in 1912, $974; and of freight train cars, $92, and in 1912, $92.

For the first time the Union Pacific has made a charge for depreciation of equipment, but did not begin this practice until July 1, 1913. The depreciation which had accrued to June 30, 1913, on the basis of the estimated life of equipment in service on that date was figured at $16,007,000, and this amount was charged to profit and loss. The Union Pacific was slow to adopt this accounting rule of the Interstate Commerce Commission, but having adopted it, is more generous in its charges for depreciation than have been most of the other roads.

During the year the Union Pacific sold no capital securities. It paid off the $23,740,000 Southern Pacific Company bond purchase notes which were outstanding at the beginning of the year, the Southern Pacific Company having paid off $12,000,000 demand loans and $36,553,000 demand and time loans which at the beginning of the year were carried as working assets on the Union Pacific balance sheet; increased its cash on hand from $7,117,000 to $11,855,000, and spent $5,551,000 for additions and betterments, including additions to equipment over and above replacement, but excluding $9,616,000 capital expenditures for extensions and branches. The largest single expenditure for plant, exclusive of equipment, was $1,363,000 for additional main track. The net expenditure on equipment was $1,718,000.

With the forced sale of the Southern Pacific stock the Union Pacific, of course, had to take into its accounts the profit on this transaction. It was thought proper, therefore, to make a readjustment of the entire investment securities account. In Judge Lovett's own words:

"A profit of $58,855,677 was made on the sale of the stock of the Northern Pacific Railway Company, the Great Northern Railway Company and the Northern Securities Company, and the board of directors of the Oregon Short Line Railroad Company, in 1911, declared a special dividend, equal to the amount of the profit, which went to the Union Pacific Railroad Company, the owner of all the stock of the Oregon Short Line Railroad Company. This appears in the profit and loss account published in the annual report for the year ended June 30, 1911 (page 33), and is explained more fully on page 16 of that report. There will be a profit of about $16,000,000 on the sale of the stock of the Southern Pacific Company which, upon final settlement of the account, will be credited to profit and loss, making a total profit on these two transactions of about $75,000,000. On the other hand, the market value of other investment securities owned, as shown in table No. 9, showed, on June 30, 1913, a depreciation of about $40,780,000. Since the Northern Securities transaction has been closed and the Southern Pacific stock disposed of, and the profit on the one transaction has been and on the other will shortly be credited to profit and loss, it seemed proper that the book value of the other investment securities owned should be either written down to approximately their market value, or that there should be created a reserve to cover eventual depreciation, if any. Therefore, it was resolved by the board of directors to appropriate out of surplus and set up as a reserve for depreciation of securities the sum of $50,000,000. Accordingly, the said amount was charged to profit and loss and credited to reserve for depreciation of securities under the head of appropriated surplus as of June 30, 1913. If and when any of the securities referred to are disposed of, whatever loss, if any, may be sustained will then be charged against this reserve account. . . ."

The following table shows the principal figures for operation in 1913 compared with 1912:

| | 1913. | 1912. |
|---|---|---|
| Average mileage operated | 7,349 | 7,150 |
| Freight revenue | $63,773,804 | $57,483,558 |
| Passenger revenue | 20,582,427 | 19,754,097 |
| Total operating revenues | 91,810,307 | 84,180,097 |
| Maint. of way and structures | 10,688,564 | 9,594,538 |
| Maint. of equipment | 10,694,011 | 9,812,175 |
| Traffic expenses | 2,107,146 | 2,119,603 |
| Transportation expenses | 26,077,120 | 24,755,109 |
| General expenses | 2,530,727 | 2,251,895 |
| Total operating expenses | 52,097,567 | 48,533,320 |
| Taxes | 4,666,277 | 4,368,789 |
| Operating income | 34,941,966 | 31,219,413 |
| Gross income | 54,149,937 | 51,368,085 |
| Net income | 36,777,106 | 34,039,993 |
| Dividends | 25,645,110 | 25,646,483 |
| Surplus | 11,131,995 | 8,393,511 |

# The Railway Situation From Different Viewpoints

## Railroad Officers and Others Discuss Labor Question, Rate Advances, Public Ownership and Other Matters

### NEEDED LEGISLATION REGARDING SETTLEMENT OF LABOR DISPUTES

By J. Kruttschnitt,
Chairman, Southern Pacific Company; President, American Railway Association.

The Act of Congress, approved July 15, 1913, known as the Newlands act, providing for mediation, conciliation, and arbitration in controversies between certain employers and employees, was designed as an improvement on and repealed the Erdman act, but it does not go far enough, and is distinctly less useful and efficient in maintaining industrial peace than the Canadian Conciliation and Labor act. The directions in which the Newlands act might be improved will be pointed out.

1. The Newlands act covers the employees engaged in train service or train operation only, of all common carriers engaged in interstate commerce. It should also cover all railway employees engaged in the interstate business of the employer, including all those engaged in keeping in repair the cars, engines, appliances, machinery, track, roadbed, and other equipment used in interstate commerce.

2. The Board of Mediation and Conciliation appointed by the President under the Newlands act is satisfactory, but as it may frequently result, through invoking the services of this board, that railway expenses are increased, it is very important that this board should be closely co-ordinated with or in some way subordinated to the Interstate Commerce Commission, so that a tribunal responsible for increasing the expenses of the roads should incur a corresponding responsibility for adjusting rates that will meet the expenditures.

3. The Newlands act provides that when a controversy arises about wages, hours of labor, or conditions of employment, either party may apply to the Board of Mediation and Conciliation for adjustment, and that the board may offer its services to the parties in controversy where interruption to public service is imminent. Under this provision there is no obligation, other than the sense of obligation to the public, on either employer or employee to submit differences to mediation. The officers of railroads appreciate thoroughly their obligations, as is evidenced by their behavior in recent controversies, but the railway employee has not yet learned that he is equally a servant of the public. Instances are numerous where mediation and arbitration have been stubbornly refused, with utter disregard of the public's interest and rights—where employees have conspired to stop traffic in order to coerce fellow public servants. This defect in the Newlands act should be remedied, as is done in the Canadian act, by making a combination, or strike, illegal *until the questions at issue shall have been thoroughly investigated and given to the public;* and it should further provide that where the board offers its services for investigation, mediation and conciliation, it shall be not optional but obligatory on both parties to submit their differences, so that the public may judge intelligently the matters in dispute.

Bulletin 86 of the United States Bureau of Labor, January, 1910, shows that under the operation of the Canadian act, from March 22, 1907, to August, 1909, in the case of the railways 17 arbitration boards were appointed, affecting some 28,000 employees. Settlement without strike was effected in every case but one; and in that one an illegal strike was begun after the report of the board was made; but after a two months' strike the strikers returned to work on the terms recommended by the board, and their defeat was attributed largely to adverse public sentiment due to their rejection of the board's findings.

4. The Newlands act prescribes that when it is impossible to settle a controversy by mediation, it may be submitted to an arbitration board of six, each party to name two members, the four to select the remaining two, or failing to agree, the Board of Mediation to name two. The defect in this provision again is in the failure to make the revenue-limiting body responsible for increases in expenses incurred for the purpose of maintaining uninterrupted public service. It seems to us that the fifth and sixth members of the arbitration board should be named by the Interstate Commerce Commission, and should really be its representatives, so that awards of increased compensation to employees will inspire a sense of duty to make a reasonably synchronal increase in sources of revenue. Increases in wages of employees engaged in train service have been frequent in the past five years, and though long applied for, no increase in rates has yet been authorized under which the public would assume the burden of expenditures made substantially at its command.

5. The provisions making it unlawful for the employer to lockout, or the employee to strike, before or during reference of a dispute to the Mediation Board, should be strict, and enforcible by adequate punishment. It will be observed that the Canadian act does not compel arbitration, but it does compel investigation and publicity. Canadian public opinion has in substantially every case settled controversies without resort to lockout or strike.

### SOME PHASES OF THE RATE ADVANCE CASE

By F. A. Delano,
President, Chicago, Indianapolis & Louisville.

Complying with the request that I make some suggestions in regard to the pending rate advance question, I would say that I have been sufficiently quoted already on the subject of arguments in favor of this action. Not only is favorable action prayed for, but *prompt* action is equally a real necessity.

The railroads in "Official Classification" territory, profiting by their experience in the 1910 case, and accepting the dictum of the Interstate Commerce Commission, have, instead of asking for an advance of certain specific rates, asked for authority for a small advance in all rates. It was thought that in this way, and in this way only, could we avoid the accusation of discrimination. All the evidence we have submitted, and the arguments we have made, are directed to prove that our revenues are inadequate, and that the only way to help them is to increase rates. After the general level has been raised, it will be within the province of any shipper, as it was before, to point out that his rates are excessive, and a readjustment of any single rate or group of rates can be made as properly from one level as another.

It appears to me that a grievance which any shipper or group of shippers may have about any particular rate or group of rates is not only inappropriate at this time, but has no standing in this case. This hearing concerns itself solely with the question as to whether the railroads are entitled to more revenue, and if they are, whether their proposition for a moderate general advance is the right way to accomplish that.

After all, there is a broad question which concerns the country as a whole. It is the question whether government regulation of privately owned and operated railroads can be made successful. It is all very well for people to suggest that government ownership of railways is coming. Perhaps it is, but the question will occur to many a thinking man, that if the instrumentalities of the government cannot make a success of regulating railways, how can they be intrusted with the responsibility

of full operation? The difficult situation that many of the railways find themselves in is due to changed conditions and changes in policies. Thirty or more years ago, every sort of an inducement was held out to encourage capital to build railroads, and it would appear to the railway investor of today that after the public had gotten the full benefit of this policy, it had now put on the "thumb-screws," and said to the investor, "Not only must you continue in this business, even though it be a losing business, for we will not permit you to abandon it, but we shall insist that you adopt modern methods, safety appliances, give better and safer service to the public, etc., etc."

Few people outside of the railroad profession realize today that a very large percentage of the mileage of the United States is not only not an asset, but is a source of expense, a positive liability.

The Interstate Commerce Commission is a very hard-working, intelligent body of men. Its members have many questions to decide which are more momentous to the public in general than nine-tenths of the questions which go to the Supreme Court. The commission has been given very extensive authority, and it is an axiom that "With great authority goes great responsibility."

It is true that the very low rates which the railroads complain of are rates which, in many cases, they themselves named as a result of competitive conditions; but it is also true that these rates can not be advanced or adjusted upward without authority from the commission, and that the commission must take the full responsibility which will arise from the fact that the railroads are inadequately compensated for their service, and the public, in consequence, insufficiently or poorly served.

## IS GOVERNMENT OWNERSHIP IN SIGHT?

BY JOHN J. ESCH,

Representative in Congress from Wisconsin.

Prior to about fifteen years ago, there was little discussion of and practically no demand for government ownership of railroads in the United States. One of the most significant trends of the public thought of today is the growing demand for such ownership, and this, too, notwithstanding the efforts made by the federal government, as well as state authorities, through regulation, to forestall such action. It is not my purpose to set forth the causes for this growing demand. I wish merely to call attention to what I consider some of the salient factors in its evolution.

By the Spooner act, approved June 28, 1892, the president was authorized to purchase from the French Maritime Canal Company, for the sum of forty millions of dollars, all of its property and franchises, including the Panama Railroad. This railroad thereupon became the property of the United States, although retaining its corporate entity as the Panama Railroad Company. From the time of its purchase to the present, it has been practically maintained and operated by the government, and will continue so to be after the Panama Canal is in operation. Although this railroad has been used mainly as a necessary aid in the construction work of the canal, it has been doing an ever increasing commercial business and has been doing it successfully. The ownership and operation of this road by the government has accustomed our people in some measure to such a policy and lessened, in some degree, the hostility thereto which generally existed throughout the country prior to its acquisition.

Another factor in aid of the propaganda for government ownership occurred at Madison Square Garden, August 20, 1906, when the present secretary of state, Mr. Bryan, upon his return from his trip around the world, declared:

> "I have reached the conclusion that there will be no permanent relief on the railroad question from discrimination between individuals and between places, and from extortionate rates, until the railroads are the property of the government and operated by the government in the interests of the people."

This declaration was made less than two months after the enactment of the Hepburn act prohibiting discriminations as between places and individuals and giving the Interstate Commerce Commission full authority to regulate rates. Notwithstanding the beneficent effects of the Hepburn act and the more recent act of 1910 amending the Interstate Commerce Law, Mr. Bryan has not renounced the position he took in his speech at Madison Square Garden, and he is a most potent factor in the government today. That he crystalized the unexpressed thought of many citizens is doubtless true, although neither the republican nor democratic party has given this policy its indorsement. In this connection, the fact must be noted that the socialist party, which believes in government ownership of public utilities, including railroads, is a growing party in the United States, and in the election of 1912 cast for its presidential electors, over 900,000 votes.

Another factor which is leading our people along the line of government ownership of railroads and lessening hostility to it because of socialistic or paternalistic grounds, is the growing encroachment by the government in the field of private enterprise. The establishment of gun and ammunition factories and power plants, and the present interest in the construction of an armor plate plant, are examples in point.

Another powerful factor which is advancing the government ownership propaganda is the increasing demand on the part of municipalities throughout the United States for the ownership of public utilities, such as gas, electric, water and power plants. One municipality, San Francisco, has recently voted to take over a portion of its street car lines.

The present Congress, in legislation which is now pending, exhibits a marked tendency in the direction of ultimate government ownership. The House Committee on Post Offices and Post Roads, in the appropriation bill which it is about to report, recommends the appropriation of $100,000 for the purchase by the government of railway postal cars, the justification therefor being that such ownership would reduce the cost of rent of cars now being paid by the government to the common carriers. Congressman Lewis of Maryland, in co-operation with the officials of the post office department, has drafted a bill providing for the purchase by the government of telephone lines, the same to be operated in connection with the postal business and under the direction of the post office department. The bill further provides that telegraph instruments be connected with the wires of these companies so that a telegraph business can also be conducted. This bill, or one of similar purpose, will have the endorsement of the postmaster general and the President. It is significant that Postmaster General Hitchcock, in the last administration, made a similar recommendation, but the same did not meet with the approval of the then President.

Most significant of all is the bill which is now being considered in the Senate and House, authorizing the President of the United States to locate, construct and operate a railroad or railroads in the territory of Alaska. Under this bill, the President has the power of detailing officers, hiring experts, letting contracts, constructing wharves and docks, and all other structures necessary in connection with these proposed lines. He is also authorized to receive compensation for the carriage of freight and passengers, and to have these lines "perform generally all the usual duties of a common carrier, for hire." For the above purposes, the secretary of the treasury, upon the order of the President, is authorized "to borrow on the credit of the United States, the sum of $35,000,000 or so much thereof as may be necessary, and to prepare and issue therefor, coupon or registered bonds of the United States."

As a result of the financial difficulties of the Frisco and New Haven lines, Senator Kenyon of Iowa recently gave notice in the Senate that he would address the Senate on the question of government ownership of railroads, and seek to show, as reported in the press, some of the advantages that would inure from the adoption of such a policy.

Personally, I have never been in favor of government ownership of railroads within the United States, and have always

sought to remedy the evils connected with their ownership and operation through regulation. Notwithstanding the regulatory statutes already enacted, evils, especially those arising out of their present and past financial control, continue to exist and hasten the trend toward government ownership. Such trend can be materially checked by giving to the Interstate Commerce Commission, or kindred body, full power over stock and bond issues.

## THE RAILROAD LABOR QUESTION

By W. L. Park,
Vice-President, Illinois Central.

The railroad labor question is one of the perplexing managerial problems that promise, from the events of the past year, a bettering. The attention of the public has been drawn towards this question through a number of mediations, arbitrations, accident investigations, and rate inquiries, to the extent that Congress has broadened the Erdman Act at the solicitation of those (both directly and indirectly) concerned. The President has appointed a commission to investigate labor matters. There is at the present time an abatement of demands for increases on the part of the labor organizations, with strong manifestations of displeasure where strikes have occurred on the part of the public, indicating that it, the arbiter in such matters, will not at present stand for a lack of moderation or reasonableness in dealing with labor matters, no matter from what source it arises.

The labor question on the railroad is not altogether a pecuniary one. The disciplining of the employees to secure the maximum of safety and efficiency is a component part of this problem—entering into the work of all classes, but more particularly those who have to do with the transportation service. During the year this phase of the railroad labor situation has been made prominent through the reports of state and federal railroad commissions. The Interstate Commerce Commission has spoken in no uncertain terms:

"The Congress has made it the duty of this commission to investigate and report upon railway accidents and to make such recommendations as circumstances may require, but there has been no legislation by which such recommendations may be enforced. It is manifest that so long as compliance with the commission's recommendations remains discretionary the entire subject of safety of operation must remain dependent only upon the carrier's volition."

And again as follows, of general application:

"The officers of the company and the general employes of the company are charged with responsibilities as public servants in operating a public utility, and the safe and successful operation of trains requires the maintenance of proper discipline and the harmonious and efficient co-operation of the company and its employes."

The question naturally arises, if it is true that our discipline is faulty, why is it so and what is the remedy? That our transportation officials and employees are as intelligent as those of other countries is quite generally admitted; that those in responsible charge of trains are much better paid is also conceded.

There is no vocation in the United States with which a comparison of railroad discipline can be made. There is no industrial plant, no matter what its magnitude may be, that cannot close down temporarily without serious public inconvenience. This is true of building operations, mining and similar activities in which the public have only a slight interest, unless it might be collectively as affecting the general prosperity.

The railroads, by reason of their duty to the public, are particularly vulnerable to concerted movements on the part of employees. The business interests of the country are so dependent upon their daily activities, that even ordinary delays to trains upset commercial transactions. In order, therefore, to judge of the extent of our departure from proper disciplinary methods, we can consistently go to some branch of the government which is now criticizing our methods. We naturally select the army, as its operations are somewhat akin. There is the same individual and collective responsibility—more, perhaps, of the individual in the official life of the army, and in the rank and file of the railroad. The results are casualties, for which there must be great responsibility—a responsibility that in the army rests mostly on the officers and on the railroads mostly on the individual in charge of the activity from which the casualty arises.

The army has rules (called regulations). They are, however, not considered sufficient, and the officers are required continuously to instruct their subordinates and drill them into involuntary obedience. They are required to discipline them, the authority in some cases going to the extreme of capital punishment. Army methods are about the same in all countries. The best disciplined army—all other things being equal—is considered the most effective. Government-owned railroads are better disciplined than those of private ownership for the reason that they follow army methods more closely.

There should be a reorganization of our discipline methods. The rules are not at fault. The officers and the rank and file compare favorably in mental and physical characteristics with the average individual employed otherwise. There is undoubtedly inherent fault in the organization, and it quite likely lies largely with the system of pay, as there is no material difference otherwise in the business methods. It is generally conceded that it is not possible in other large activities to maintain the proper relation between the working forces if the pay of the rank and file is not properly adjusted with relation to the responsibilities and duties performed, a condition that exists on railroads in other countries and elsewhere in every line of business. That our railroads have been found very much out of line in this respect is a well recognized fact. In some cases the wages are higher than the services rendered justify, other vocations being used as the measure. The most serious phase of the situation, however, is the question of discipline. The psychological effect of a labor aristocracy is becoming manifest in divers ways, none more seriously than in the tendency arbitrarily to support those who may be members of an organization, or, by federation, those of allied organizations, who are derelict in matters affecting the safety of lives or property, as manifested recently in printed notice to the railroads of an intention to contest the authority of the managers on important questions of discipline and in the inclusion in all requests for changes in working agreements of many reinstatements of those dismissed for flagrant violation of rules.

This growing independence of action, amounting almost to insubordination, is a most serious matter. Where labor interferes with discipline and where it does not is, of course, a much mooted question. Some efficient operating officials contend that such interference is eating the very heart out of the railroad organization; others, equally as capable, contend that they control the situation. Between the two there are all shades of opinions. When accidents occur in which the public is interested the cause is disputed and the responsibility clouded, at least to the public. The public naturally thinks that there must be some fire where there is so much smoke—enough to lead it to clamor for relief. If this cannot be obtained in better method, then it forces upon us steel cars, automatic control, signals, electric headlights, full crews, and other doubtful expenditures for safety beyond the earning power of the railroads to provide except as they naturally progress.

The railroads are standardizing track, bridges, block signaling, equipment, rules and practices. Why should they not standardize wages and discipline just as the government would do if it owned and operated the railroads? Should there not be a code of regulations prescribing the duties of not only employees, but of the officers, insofar as they relate to transportation matters? There should be prescribed efficiency tests, physical requirements, and a pension system. The performances of officials and employees should be one of the most valued records. It is safe to assert that very few railroads have a complete up-to-date discipline system or record of their employees. The so-called Brown system, as ordinarily in use, is a delusion, for the reason

that it is not specific in some essentials, and few roads keep the employees' records accurately. The abolishment of actual suspension was a step forward, but there should be something substantial in its place.

With a proper and definite understanding as to discipline there must come a more harmonious relation between the railways and their employees, and with it greater efficiency. To go counter to economic principles will not benefit either the employer or the employee. One or the other may for the time being obtain an advantage. The Golden Rule is just as applicable to business as elsewhere, and as much in the railway business as in any other.

## FREIGHT RATES AND THE POPULAR INTEREST

By Paul W. Brown,
Editor of the *St. Louis Republic.*

A daily newspaper is an advocate retained in behalf of the many. The case of the railroads, in their movement to secure higher freight rates, is especially interesting to a newspaper man at the points where it touches the popular interest.

The relation of the public interest to railroad rate-making is not so simple as it has commonly been regarded. The average citizen has interests in it of which he has not been advised. He supposes—generally speaking—that his interest in freight rates is solely to have them as low as possible. He recognizes the fact that cost of transportation is a factor in the cost of everything he uses or consumes, and the general interest of the consumer in low prices needs no argument. But—leaving wholly out of the question the interest of the railroads as such, and regarding only the interest of the "man in the street"—there are two powerful considerations which must operate to modify that man's demands for cheap transportation. The first is his personal interest in adequate transportation service; the second is his interest as a railroad proprietor. But the plain citizen has not been trained to give much thought to the efficiency of railway service, as distinguished from its cost; and many a man, part proprietor of railway securities, lives and dies without ever suspecting the fact.

The railroads are themselves chiefly to blame for the fact that the general public has given so little attention to the quality of freight service. Railroads have spent millions of dollars in telling people about the passenger service rendered by their respective lines. They have advertised quick time, "safety first," stone ballast, gentle curves, improved locomotives, steel compartment sleepers, observation cars, and what-not. As a result of all this education, the public pays excess fare on trains which run above a certain speed without a murmur. It has come to be popularly understood that in the realm of passenger transportation, there must be payment according to the quality of the "goods." Why has this necessary work been so generally neglected with respect to freight transportation, on which the railroad depends for the heavy end of its revenue?

The development of modern fast freight service and the evolution of modern freight equipment would make as interesting a tale as the story of the dining car and the automatic block signal. And in the interest of the growth of modern cities and the healthful development of modern country life, there should be more emphasis in popular thought upon the quality of the freight service which the railroad sells and the public buys. The public—not for the sake of the railroads; for its own sake—must be made to realize that there is more than a figure in the statement that railroads are the arteries of commerce, and that hardening of the arteries threatens apoplexy to an industrial nation just as surely as it does to a man.

The public, also, is prone to forget that it owns the railroads. Not directly, but none the less really. There are few men so poor that they have not an account in a savings bank, fire insurance on house or household goods, or a life insurance policy. Now, the savings banks and the insurance companies—fire and life—are heavy owners of railway securities. Three life insurance companies own $800,000,000 worth of railroad bonds.

The railroads of the country belong, in good part, to the humble people, many of them fighting a hand-to-hand fight with poverty, who have savings bank accounts and insurance policies. These are the investors the security of whose investments is of the greatest social importance. The fact of their railroad ownership ought to be brought home to them.

The daily newspaper, an advocate retained in behalf of the many, ought to contend for a reasonable increase in freight rates. Grant that, a few years since, rates were excessive. For the past decade, at least, wages and the price of all railway supplies have steadily risen; the public has grown more exacting in the matter of service; legislatures have largely added, by laws regulating hours of labor, requiring safety appliances, and the like, to railway expense; while the general level of railway rates has remained stationary. The last two years have seen Nature adding her contribution to the railroads' burden through the highest floods ever known to the Mississippi valley. In the interest of the great mass of the people, who are users of transportation and owners of railroads through the savings banks and insurance companies, freight rates should be raised.

## PROGRESS IN ELECTRIFICATION DURING 1913

By A. H. Armstrong,
Assistant Engineer, Railway Department, General Electric Co.

Until the perfection of the electric motor made it applicable to haulage service, railroading could properly be considered as steam railroading, subject to all the limitations of the steam locomotive. The past ten years have witnessed a great advance in the construction of the steam engine, both as regards capacity and efficiency in burning fuel. Even with boilers of modern construction with their economical use of fuel, the still growing demand for locomotives of greater capacity has called for a crew of two firemen or the use of mechanical stokers in order to burn coal at the rate required. It was also early found that the increased hauling capacity of the heavy Mallet was secured at the expense of speed on the ruling grade, due to the limitations of one man throwing coal at a maximum rate not greatly exceeding 5,000 lbs. per hour.

The limitations of the steam locomotive are, perhaps, more apparent on mountain divisions than elsewhere, and it is in this direction that the electric locomotive has made serious inroads during the past year. Both steam and electric locomotives have their distinctive handicaps which must be considered as affecting the first cost and cost of operation. The steam locomotive requires coal and water facilities frequently spaced, turntables, roundhouses and a considerable maintenance force both in the roundhouse and in the extensive shops required. The electric locomotive demands a trolley or third rail together with the generating and distributing system required for the production of power and its transmission to the locomotive. But while due recognition must be given to the complete system, the reason for considering electrification at all is on account of the greater advantages offered by the electric locomotive itself. It is in the electric locomotive, therefore, that the greatest interest centers as offering the possibility of introducing such radical improvements in present steam locomotive operation as to justify the large expense involved in electrification.

During the past year notable advance has been made in the application of the electric locomotive. Special interest centers in the electrical operation of the Butte, Anaconda & Pacific, which opened in part May 28, 1913, and which has been in complete electrical operation since October. While electric locomotives were installed on this road partly to demonstrate the feasibility of adopting electricity upon the Chicago, Milwaukee & St. Paul, there is operating evidence to justify the belief that the resulting economies effected in operation will pay an attractive return upon the cost of electrification. The service upon the Butte, Anaconda & Pacific is in every way comparable with that

of the mountain divisions of our main lines. Trains of 4,000 tons are operated against a ruling gradient of 0.3 per cent. at a speed of 16 miles per hour on the main line. The annual tonnage comprises the movement of approximately 5,000,000 tons of ore as well as mine supplies, in addition to the passenger service maintained between Butte and Anaconda.

The success attending the electrical operation of the Butte, Anaconda & Pacific has resulted in power contracts being placed for the electrification of 440 miles of the Chicago, Milwaukee & St. Paul, and the selection of the same type of direct current locomotive upon the Butte, Anaconda & Pacific. Announcement has been made that the electrification of the first engine district through Butte will be pushed as rapidly as possible, and the other three districts will be electrically equipped in the near future. This electrification will be by far the most extensive as regards route mileage yet constructed in this country or abroad, and will afford every opportunity to secure all possible benefits resulting from electric locomotive operation.

The electrical installation in the tunnel of the Canadian Northern at Montreal may be looked upon as depending upon the same causes as governed the adoption of electric power for the New York terminal roads. The proposed installation on the Canadian Pacific at Rossland, however, must be considered as foreshadowing future activity on this road in the direction of main line electrification. Announcement is also made of contracts placed for electric locomotives to be used upon the 30-mile section over Elkhorn grade of the Norfolk & Western as well as possible action of the same nature by the Denver & Rio Grande.

All of these mountain grade electrifications are being made because the electric locomotive offers a means of improving the conditions that now exist with steam locomotive operation. The electric locomotive can be constructed of any capacity required by local conditions both as regards its hauling capacity in trailing tonnage and also in the speed at which this tonnage is hauled up the ruling gradients. There is little opportunity to increase the schedule speed of present steam locomotive drags except on the heavier grade divisions, as speed on level track in many instances is already carried as high as present freight car construction will permit. But the electric locomotive possesses the very qualification required for grade operation, as it can be constructed to give its maximum tractive effort at any speed found desirable, owing to the fact that it draws its power from a stationary power plant of relatively unlimited capacity and is therefore not subject to the boiler restrictions of the steam locomotive.

It is apparent that great benefits will result from the operation of the electric locomotive which can provide a drawbar pull as great as the draft gear of the trailing cars can withstand, at a speed limited only by the alignment and not the gradient of the roadbed, and with no enforced stops to take on coal and water. Furthermore, the electric locomotive provides a means of braking on down grades that can eliminate the dangers of overheated wheels and brake shoes attending braking with air. The energy of the descending train is converted into electricity and is pumped back into the distributing system to be used by other trains operating up grade or on level track.

The Butte, Anaconda & Pacific electrical installation presents a good demonstration of the preparedness of the great power systems to take on a railway load at power rates equally attractive to the power company and the railway. The Great Falls Power Company absorbed the railway load in this instance without in any way interfering with regular lighting and power load, the effect of the fluctuations of the railway load being minimized by a proper selection and design of substation apparatus. It must be admitted that steam road electrification becomes a simpler problem if part of the initial financial burden can be placed upon a power company having adequate facilities to guarantee a reliable source of power at an attractive rate. In this connection it is of interest to note that power is purchased in the case of the Butte, Anaconda & Pacific, Canadian Northern, Canadian Pacific, and Chicago, Milwaukee & St. Paul, and similar plans are being entertained by the Denver & Rio Grande officials.

The several large electrifications commenced during the past year will soon provide the needed operating facts required to determine where and to what extent it will pay to replace the steam locomotive upon our main lines. The mountain grade division appears to be the present point of attack, as evidenced by the undertakings cited, and it is expected that economies effected over previous steam operation will give an adequate return upon the capital investment. The success of these installations will undoubtedly lead to extensions of the initial electrified zone and to similar electrifications upon other roads.

Not least among the causes contributing to the marked activity in railway electrification during the year of 1913 is the preparedness of the electrical manufacturing companies to furnish the electric locomotive of large capacity and rugged construction required. While it is true that considerable diversity exists as to type of motor and mechanical drive used, the successful development of the electric locomotive is evidenced by the operation of such types, for example, as the New York Central gearless locomotives which operate at 90 per cent. efficiency from third rail to driver rim and have been maintained in good operating condition at an expense of approximately 3½ cents per mile run. The later locomotives of this type, constructed and put into operation during the past year, have capacity to handle a 1,000-ton train at speeds up to 60 miles per hour. High speed passenger locomotives of even greater capacity are in view which will permit of the elimination of helper locomotives for passenger service on ruling gradients up to 2 per cent. Here again is offered opportunity to effect improvements in service with the adoption of an electric locomotive having sufficient capacity to handle 1,000 tons on a 2 per cent. grade at 25 miles per hour without helper locomotives and attain a speed of 60 miles with the same train on level track.

Steam road electrification is, therefore, being considered from the standpoint both of improvement in the service rendered and also of effecting operating economies that will pay a reasonable return upon the capital investment required. Such operating facts as are thus far available substantiate both the claims advanced and indicate a wide field of usefulness for the electric locomotive as its qualifications become better appreciated.

## RAILROAD PUBLICITY

By Ivy L. Lee,
Executive Assistant, Pennsylvania Railroad.

It is unfortunate that there is no English word, which, contrasted with the word "advertising," describes those proper efforts of public service corporations to render running account of themselves to that great public which they serve. A railroad advertises, and should advertise, to increase its business. It is said that the number of voters who can be influenced by the activities of any political campaign are less than 10 per cent. of the total. No one has attempted to calculate the amount of railroad business which can be influenced by advertising. It is safe to say, however, that the proportion of such business which can be so influenced is relatively very small. The great bulk of the business of a transportation company comes to it unsolicited. The handling of such traffic as best it can is a public obligation, assumed by the railroad company when its line is opened for traffic. It is the duty of a railroad company not only to handle that business; it is equally desirable to tell the public how it is handling it.

It is, of course, easy to resolve to take the public into one's confidence; it is much more difficult to do it. About the only medium of communicating with the public at large is the press.

It is obvious that the press and public are not interested in all of the complex details of railroad activity, and certainly the public is not interested if told of those details in language permeated with the phraseology of railroad operations or accounts. But the public (and the press but mirrors the public appetite) is eager to know concerning matters of railroad progress, efficiency, and general development. In the activities of every

railroad there are facts of every-day occurrence which are interesting to the public at large, if they were only known by that public. The press would be equally inquiring about these facts, if they were aware of their existence. Both press and public would be much more sympathetic with the difficulties of railroad managers, if they appreciated the problems which those managers were daily solving, and solving almost as invariably in the interest of the general public. It is for the railroad manager, therefore, to tell the public what he is doing, tell the things which the public wants to know, and to tell them in a manner which the public will understand. Such information must of course be concrete, it must be timely, and it must be told briefly and tersely.

Some railroad officers make it a practice to have frequent personal interviews with newspaper representatives and give them their data in such informal conversations. Such interviews are very helpful, but newspaper men are reporting every conceivable kind of subject, from a church fair or a baseball game to a national political convention or railroad annual report. They cannot, unless they have made a special study of the subject, be familiar with railroad phraseology and all those delicate and subtle qualifications which must so often be attached to the promulgation of any statement of fact. It would seem, therefore, to be desirable to give a large part of such information as that indicated, in written form, thus securing accuracy.

Most salutary results have been obtained by the preparation of such data and the distribution thereof not only to the newspapers in the particular city where the office is located, but to newspapers along the line of a whole railroad system. Such information is not advertising; it is a tendering to the general public of a sort of running daily report of how the railroad company is performing its public service.

Obviously, all the newspapers are not interested in all such material which the railroads may make public; the public itself is not interested. The public is often quite careless of facts which some railroad managers consider highly important. Above all things, the public is not interested in intricate, statistical statements or comparisons. The public does not reason; it feels. And he who can make the public feel is the successful man in reaching the public sympathy.

All railroad men know, of course, that the railroad is not locomotives and track, but that it is the men who operate them. These men are the same kind of men as are engaged in other human activities, with the same weaknesses and the same average of virtues. The average man wants to do right; the average railroad man wants to do right. The unremitting purpose of railroad managers in talking with the public, therefore, should be to make the public feel that their purposes are good and that they are doing the best they know how to accomplish those purposes. Angels can do no more.

Not only should information be made public and industriously circulated, but it should be done absolutely frankly and authoritatively. Indirect methods of publicity are futile, and are bound to defeat themselves in the long run. The press should be absolutely independent and should at all times express its own views. Any information which a newspaper publishes concerning railroad or other corporations should be gathered from such sources as it considers reliable, and given to its constituency with the newspapers' own implied assurances of the information's accuracy. Any payment by a public service corporation or interested body to have information appear in newspaper columns, published as news, yet which is paid for by such corporation, can do but little or no good, and embodies in full measure the policy of the architect who builded his home upon the sands.

The progressive railroad will always advertise its service, and will thereby constantly seek to increase its patronage. But it will, in addition to that and entirely independent of its advertising, tell its story to the public freely, frankly and systematically, inviting inquiries and replying to them, and constantly seeking out and making known those facts or incidents in its own experience which shed a light upon its purposes and methods. Such a running report, told in and out of season, is certain to have a most gratifying effect.

## LOCOMOTIVE SMOKE IN CHICAGO

The Smoke Department of the City of Chicago has recently issued a report of the standing of the railroads as regards the emission of smoke within the city limits of Chicago. The report is especially noteworthy on account of the excellent showing made by the roads. It is the best report ever presented at Chicago and far exceeds the expectations of a few years ago. A total of 8,038 observations were made for a total of 24,131 minutes, and the average density for all roads was 5.79 per cent. All but three of those mentioned in the table showed improvement over their averages at the same time last year. The results of these observations indicate, when compared with those taken during the summer months, that it is decidedly easier to eliminate smoke during the cold weather than it is in the warm weather. The excellent results being obtained by the railroads entering Chicago in regard to smoke may be accounted for by the joint organization in existence at that city, as described in the *Railway Age Gazette* of August 8, 1913, on page 239. The following is a list showing the standing of the different roads with their average smoke densities:

STANDING OF RAILROADS—AUTUMN, 1913—AS ISSUED BY THE SMOKE DEPT. OF CITY OF CHICAGO.

| | | Autumn, 1913, Av. Per Cent. Density. | Standing Autumn, 1912. | Autumn, 1912, Av. Per Cent. Density. | Standing Summer 1913. | Summer, 1913, Av. Per Cent. Density. |
|---|---|---|---|---|---|---|
| 1. | C. B. & Q. | 1.64 | 1 | 1.88 | 5 | 7.74 |
| 2. | C. & N. W. | 2.35 | 15 | 9.61 | 4 | 7.65 |
| 3. | A. T. & S. F. | 2.45 | 2 | 3.72 | 1 | 4.73 |
| 4. | L. S. & M. S. | 2.76 | 4 | 4.02 | 6 | 9.49 |
| 5. | C. M. & St. P. | 3.64 | 10 | 7.56 | 8 | 11.75 |
| 6. | C. G. W. | 3.99 | 5 | 4.89 | 12 | 13.37 |
| 7. | Ill. Central | 3.99 | 3 | 7.14 | 3 | 7.43 |
| 8. | C. & O. | 4. | 20 | 20. | 17 | 14.78 |
| 9. | Grand Trunk | 4.89 | 28 | 20.34 | 23 | 16.62 |
| 10. | Rock Island | 5.16 | 11 | 8.71 | 15 | 14.66 |
| 11. | C. I. & S. | 5.29 | 23 | 15.55 | 19 | 15.12 |
| 12. | Illinois Northern | 6.03 | 21 | 12.47 | 2 | 6.31 |
| 13. | M. C. | 6.32 | 20 | 12.39 | 11 | 12.23 |
| 14. | N. Y. C. & St. L. | 6.42 | 6 | 5.96 | 9 | 11.9 |
| 15. | C. & W. I. | 6.61 | 22 | 12.54 | 25 | 17.1 |
| 16. | C. & A. | 6.84 | 7 | 6.47 | 21 | 16.56 |
| 17. | C. & E. I. | 6.92 | 9 | 7.47 | 16 | 14.73 |
| 18. | C. I. & L. | 7.15 | 16 | 9.95 | 20 | 15.63 |
| 19. | Wabash | 7.19 | 19 | 11.74 | 14 | 14.12 |
| 20. | P. M. | 7.19 | 17 | 9.95 | 28 | 18.8 |
| 21. | B. & O. C. T. | 7.23 | 14 | 9.52 | 10 | 12.14 |
| 22. | Pennsylvania | 7.88 | 13 | 9.92 | 22 | 16.58 |
| 23. | Belt | 9.27 | 18 | 11.51 | 26 | 18.06 |
| 24. | E. J. & E. | 11.91 | 29 | 30.45 | 27 | 18.45 |
| 25. | B. & O. | 12.41 | 26 | 19.41 | 13 | 13.4 |
| 26. | Erie | 12.57 | 24 | 16.38 | 29 | 20.51 |
| 27. | Soo Line | 13.54 | 12 | 8.84 | 7 | 10.86 |
| 28. | Chicago Junction | 19.29 | 25 | 17.53 | 24 | 17.01 |
| 29. | C. Srt. L. | 34. | not listed | | 32 | 29.23 |
| 30. | C. R. & I. | 41.46 | 31 | 33.2 | 18 | 14.94 |
| 31. | Pullman R. R. | 48.42 | not listed | | not listed | |
| | Total | 5.79 | | | | |

TAXICAB SERVICE IN VIENNA.—In Vienna the taxicab business is open to anyone who can secure a license similar to that granted for a public cab. The service is conducted by former cab drivers, by individuals having two or more machines with hired drivers, and by several companies. The cars used are of a great variety of makes, including some from America. As yet there are no municipal ordinances fixing types, rates, wages, etc., and traffic regulations are the same as for horse-drawn vehicles. Of late, however, there has been a popular outcry against the charges, which are estimated at three times the rates in Paris. That and the demand for more uniform service will doubtless soon result in stricter police regulation.

# New Railway Construction for the Year 1913

## More Track Laid in the United States and Canada, and Less Track in Mexico Than in the Previous Year

In 1913, a total of 3,071 miles of new first track was built in the United States. In this same period 1,263 miles of second track and 131 miles of other multiple main tracks were laid. These figures are based upon reports furnished us directly by the railroads in response to inquiries, supplemented by data gathered from our own construction records, and are as complete as it is possible to compile at this time.

The mileage of new line built is practically the same as for each of the past two years, and with the exception of these years is the smallest since 1897, when only 2,109 miles were built. The amount of new line constructed this year is only slightly more than half that built in 1902. The figures of new construction by years, beginning with 1893, are as follows:

| | | |
|---|---|---|
| 1893.....3,024 | 1900.....4,894 | 1907.....5,212 |
| 1894.....1,760 | 1901.....5,368 | 1908.....3,214 |
| 1895.....1,428 | 1902.....6,026 | 1909.....3,748 |
| 1896.....1,692 | 1903.....5,652 | 1910.....4,122 |
| 1897.....2,109 | 1904.....3,832 | 1911.....3,066 |
| 1898.....3,265 | 1905.....4,388 | 1912.....2,997 |
| 1899.....4,569 | 1906.....5,623 | 1913.....3,071 |

New mileage was reported built in 1913 by 238 companies in 47 states. No new mileage was added in Connecticut, Rhode Island, Delaware or Alaska. Montana leads in new construction with 375 miles. Texas is second with 356 miles. Other states in which over 100 miles of new line were completed are: Washington, 209 miles; California, 164 miles; North Dakota, 152 miles; Arkansas, 139 miles; Oregon, 123 miles; Illinois, 114 miles; Tennessee, 111 miles; Florida, 105 miles; Michigan, 104 miles, and North Carolina, 104 miles.

The longest continuous line built last year was an extension of the Chicago, Milwaukee & St. Paul from Great Falls, Mont., to Lewistown, 135 miles. With other branches, this road built a total of 208 miles in this state. The second longest line was built by the Great Northern from Wenatchee, Wash., to Oroville, 112 miles. The Louisville & Nashville completed 98 miles of new line between the Cumberland river bridge, Nashville, Tenn., and Athens, Ala., which is part of a two-track line between Nashville and Birmingham. The Chicago & North Western built 91 miles of road from Peoria, Ill., to Girard, and the Santa Fe laid 88 miles of track from Lubbock Junction, Tex., west to Farwell.

The mileage of second track built in 1913 was 1,264 miles, as compared with 1,073 miles in 1912. This work was distributed through 34 states, although the larger part of it was concentrated in a few large projects. The Chicago, Milwaukee & St. Paul again leads with the construction of a continuous stretch of 150 miles of second track between Oxford Junction, Ia., and Coon Rapids, which is a part of the work on 275 miles of line between Green Island, Ia., and Manilla, all of which is now nearing completion. This road also completed 101 miles of second track between Milbank, S. D., and Aberdeen, and 40 miles between Minneapolis, Minn., and Montevideo. Work is also nearing completion on the construction of second track on the remaining portions of the line between Minneapolis and Aberdeen, 280 miles.

The Erie reports the second largest amount of second track, with 121 miles between Marion, O., and Laketon, Ind., and 46 miles additional between Akron, Ind., and Lomax. The construction of a second track on the remaining portions of the line

NEW TRACK BUILT IN 1913

| UNITED STATES— | No. Cos. building | First track | Second track | Third track | Fourth or more tracks | Total Miles |
|---|---|---|---|---|---|---|
| Alabama | 9 | 57.60 | 102.28 | ..... | ..... | 159.88 |
| Arizona | 4 | 19.71 | 92.91 | ..... | ..... | 112.62 |
| Arkansas | 8 | 139.29 | 6.00 | ..... | ..... | 145.29 |
| California | 11 | 164.41 | 65.15 | ..... | ..... | 229.56 |
| Colorado | 2 | 53.10 | ..... | ..... | ..... | 53.10 |
| Connecticut | 1 | ..... | 9.16 | ..... | ..... | 9.16 |
| Florida | 8 | 104.86 | ..... | ..... | ..... | 104.86 |
| Georgia | 11 | 81.98 | 11.37 | ..... | ..... | 93.35 |
| Idaho | 3 | 76.67 | 23.90 | ..... | ..... | 100.57 |
| Illinois | 7 | 113.96 | 34.79 | 19.79 | 1.02 | 169.56 |
| Indiana | 4 | 6.74 | 104.12 | ..... | 2.43 | 113.29 |
| Iowa | 4 | 28.66 | 150.00 | ..... | ..... | 178.66 |
| Kansas | 2 | 36.21 | ..... | ..... | ..... | 36.21 |
| Kentucky | 7 | 48.34 | 43.12 | ..... | ..... | 91.46 |
| Louisiana | 4 | 44.43 | ..... | ..... | ..... | 44.43 |
| Maine | 1 | 7.20 | ..... | ..... | ..... | 7.20 |
| Maryland | 1 | .23 | 1.54 | ..... | ..... | 1.77 |
| Massachusetts | 2 | 9.82 | .75 | 1.70 | ..... | 12.27 |
| Michigan | 7 | 103.93 | ..... | ..... | ..... | 103.93 |
| Minnesota | 5 | 20.53 | 70.54 | ..... | ..... | 91.07 |
| Mississippi | 4 | 47.00 | 7.58 | ..... | ..... | 54.58 |
| Missouri | 4 | 30.25 | 3.63 | ..... | ..... | 33.88 |
| Montana | 6 | 375.11 | 1.75 | ..... | ..... | 376.86 |
| Nebraska | 3 | 26.47 | 41.80 | ..... | ..... | 68.27 |
| Nevada | 2 | 59.56 | 38.78 | ..... | ..... | 98.34 |
| New Hampshire | 1 | 7.47 | ..... | ..... | ..... | 7.47 |
| New Jersey | 5 | 1.47 | 2.55 | 12.59 | 11.00 | 27.61 |
| New Mexico | 1 | 13.00 | ..... | ..... | ..... | 13.00 |
| New York | 9 | 2.26 | 36.86 | 24.13 | 9.83 | 73.08 |
| North Carolina | 6 | 103.57 | ..... | ..... | ..... | 103.57 |
| North Dakota | 6 | 152.08 | ..... | ..... | ..... | 152.08 |
| Ohio | 6 | 28.06 | 78.48 | 13.79 | 14.78 | 135.05 |
| Oklahoma | 2 | 34.00 | ..... | ..... | ..... | 34.00 |
| Oregon | 8 | 122.89 | 1.14 | ..... | ..... | 124.03 |
| Pennsylvania | 14 | 50.76 | 42.36 | 11.73 | 4.20 | 109.05 |
| Rhode Island | 1 | ..... | 2.48 | ..... | ..... | 2.48 |
| South Carolina | 5 | 32.70 | 5.00 | ..... | ..... | 37.70 |
| South Dakota | 2 | 38.00 | 101.00 | ..... | ..... | 139.00 |
| Tennessee | 5 | 111.29 | 13.81 | ..... | ..... | 125.10 |
| Texas | 14 | 356.40 | 10.63 | ..... | ..... | 367.03 |
| Utah | 4 | 17.09 | ..... | ..... | ..... | 17.09 |
| Vermont | 2 | 2.96 | ..... | ..... | ..... | 2.96 |
| Virginia | 5 | 23.54 | 65.55 | ..... | ..... | 89.09 |
| Washington | 7 | 209.66 | 1.60 | ..... | ..... | 210.66 |
| West Virginia | 8 | 43.61 | .33 | 4.64 | ..... | 48.58 |
| Wisconsin | 4 | 9.38 | 78.39 | ..... | ..... | 87.77 |
| Wyoming | 3 | 55.53 | 14.53 | ..... | ..... | 70.06 |
| Total | 238 | 3,071.12 | 1,263.88 | 88.37 | 43.26 | 4,466.63 |
| CANADA | 23 | 3,012.96 | 353.33 | ..... | ..... | 3,366.29 |
| MEXICO | 2 | 38.20 | ..... | ..... | ..... | 38.20 |

NEW TRACK BUILT IN 1912

| UNITED STATES— | No. Cos. building | First track | Second track | Third track | Fourth or more tracks | Total Miles |
|---|---|---|---|---|---|---|
| Alabama | 3 | 18.50 | 1.45 | ..... | ..... | 19.95 |
| Arizona | 2 | 105.38 | ..... | ..... | ..... | 105.38 |
| Arkansas | 4 | 67.19 | 9.12 | ..... | ..... | 76.31 |
| California | 9 | 78.75 | 50.27 | ..... | ..... | 129.02 |
| Colorado | 2 | 6.27 | 6.93 | ..... | ..... | 13.20 |
| Connecticut | 1 | ..... | 10.01 | ..... | ..... | 10.01 |
| Florida | 8 | 181.90 | ..... | ..... | ..... | 181.90 |
| Georgia | 13 | 152.75 | 40.00 | ..... | ..... | 192.75 |
| Idaho | 5 | 105.03 | ..... | ..... | ..... | 105.03 |
| Illinois | 8 | 24.54 | 148.58 | 4.22 | 4.11 | 181.45 |
| Indiana | 6 | 8.00 | 54.55 | ..... | ..... | 62.55 |
| Iowa | 4 | 87.54 | ..... | ..... | ..... | 87.54 |
| Kansas | 3 | 92.46 | 1.84 | ..... | ..... | 94.30 |
| Kentucky | 6 | 119.63 | 93.70 | ..... | ..... | 213.33 |
| Louisiana | 7 | 89.00 | 18.00 | ..... | ..... | 107.00 |
| Maine | 2 | 5.79 | 4.51 | ..... | ..... | 10.30 |
| Maryland | 4 | 1.00 | 18.57 | ..... | 3.31 | 22.88 |
| Massachusetts | 4 | 5.00 | 7.35 | 2.12 | 2.06 | 16.53 |
| Michigan | 6 | 7.80 | 52.01 | 2.07 | ..... | 61.88 |
| Minnesota | 4 | 47.26 | 4.89 | ..... | ..... | 52.15 |
| Mississippi | 3 | 20.00 | ..... | ..... | ..... | 20.00 |
| Missouri | 4 | 0.96 | 37.31 | ..... | ..... | 38.27 |
| Montana | 4 | 130.15 | ..... | ..... | ..... | 130.15 |
| Nebraska | 1 | 36.87 | 59.98 | ..... | ..... | 96.85 |
| Nevada | 3 | 47.24 | 4.13 | ..... | ..... | 51.37 |
| New Jersey | 3 | ..... | ..... | 3.44 | 6.30 | 9.74 |
| New Mexico | 1 | ..... | 27.50 | ..... | ..... | 27.50 |
| New York | 6 | 3.17 | 16.25 | 18.25 | 13.60 | 51.27 |
| North Carolina | 12 | 93.45 | 37.55 | ..... | ..... | 131.00 |
| North Dakota | 3 | 346.91 | 4.83 | ..... | ..... | 351.74 |
| Ohio | 8 | 12.75 | 64.72 | 13.64 | 19.36 | 110.47 |
| Oklahoma | 5 | 242.16 | ..... | ..... | ..... | 242.16 |
| Oregon | 3 | 24.71 | 4.40 | ..... | ..... | 29.11 |
| Pennsylvania | 17 | 68.80 | 17.54 | 13.24 | 17.26 | 116.84 |
| Rhode Island | 1 | ..... | 3.50 | ..... | ..... | 3.50 |
| South Carolina | 5 | 78.50 | 19.60 | ..... | ..... | 98.10 |
| Tennessee | 7 | 28.51 | 18.57 | ..... | ..... | 47.08 |
| Texas | 10 | 335.66 | 1.43 | ..... | ..... | 337.09 |
| Utah | 5 | 24.33 | 32.84 | ..... | ..... | 57.17 |
| Vermont | 1 | 1.00 | ..... | ..... | ..... | 1.00 |
| Virginia | 7 | 9.60 | 43.05 | 3.20 | ..... | 55.85 |
| Washington | 7 | 105.73 | 17.08 | ..... | ..... | 122.81 |
| West Virginia | 7 | 99.22 | 6.09 | 6.67 | 8.38 | 120.36 |
| Wisconsin | 6 | 14.57 | 107.33 | .58 | ..... | 122.48 |
| Wyoming | 2 | 69.00 | 27.46 | ..... | ..... | 96.46 |
| Total | 232 | 2,997.08 | 1,072.94 | 67.43 | 74.38 | 4,211.83 |
| CANADA | 20 | 2,232.10 | 201.83 | ..... | ..... | 2,433.93 |
| MEXICO | 4 | 312.18 | ..... | ..... | ..... | 312.18 |

between Marion, O., and Lomax, a total distance of 205 miles, will be completed early in 1914. This road also built 36 miles in Pennsylvania and 12 miles in New York.

The Louisville & Nashville completed 97 miles of second track from Athens, Ala., to Boyles, as a part of the reconstruction of the line between Nashville and Birmingham, referred to above. It also added 20 miles in Kentucky and five miles in Tennessee. The Santa Fe added 43 miles of second track between Cactus, Ariz., and Flagstaff, and 50 miles between Ash Fork, Ariz., and Yampai, in addition to 24 miles in California.

The above figures do not include the relocation of existing lines where the mileage of main line tracks is not increased. It excludes, for example, such important work as the reconstruction of the Delaware, Lackawanna & Western between Clarks Summit, Pa., and Hallstead, and that of the Denver & Rio Grande between Soldier Summit, Utah, and Tucker.

At the close of the year 1,522 miles of new line was under construction, 1,511 miles of additional line had been located and 1,296 miles was projected. On the same date 408 miles of second track was under construction and 249 miles located or projected. This compares with 2,500 miles of new line under construction on January 1, 1912, and 2,800 miles located and projected.

The mileage in Canada continues to increase rapidly. There was 3,013 miles of new first track built this year as compared with 2,232 miles in 1912 and 1,898 in 1911. The increase in this mileage is strikingly shown by the figures for the last ten years:

CANADA

| | | | |
|---|---|---|---|
| 1904 | 316 | 1909 | 1,488 |
| 1905 | 1,181 | 1910 | 1,844 |
| 1906 | 1,007 | 1911 | 1,898 |
| 1907 | 976 | 1912 | 2,232 |
| 1908 | 1,249 | 1913 | 3,013 |

In 1913 the Canadian Northern alone built 580 miles in Quebec and Ontario; 495 miles in Manitoba, Saskatchewan and Alberta, and 206 miles in British Columbia; or a total of 1,281 miles. The Pacific coast extensions of this road and of the Grand Trunk Pacific are both rapidly nearing completion and will probably be connected up late next year. The Canadian Pacific laid 501 miles on the lines west of Winnipeg, and 192 miles on the eastern lines, while the Grand Trunk Pacific laid 480 miles west of Winnipeg, and the National Transcontinental laid 90 miles. The Canadian Pacific also built 221 miles of second track on the main line west of Winnipeg, and 118 miles in Quebec and Ontario. Over 1,567 miles of first track is under construction in Canada with 551 miles additional surveyed and 576 miles projected.

As would be expected, the disturbances in Mexico have caused an almost complete cessation of construction activities there, 38 miles of line being completed during the past year, as compared with 212 miles in 1912 and 351 in 1911.

The comparative amounts of various classes of new track built in each state during 1912 and 1913 are shown in the two small tables and full details are given below.

## UNITED STATES.

### ALABAMA

| *First Track* | | Miles. |
|---|---|---|
| Alabama & Northwestern—Between Lewiston and Sweetwater | 4.00 | |
| Alabama, Tennessee & Northern—Not specified | 4.00 | |
| Atlantic Coast Line—Aloga east | 1.00 | |
| Birmingham & Southeastern—Between Tallassee and Electra | 0.42 | |
| Gulf, Florida & Alabama—Local to Broughton | 20.00 | |
| Louisville & Nashville—Athens to Tennessee state line | 15.50 | |
| Mobile & Ohio—Mann to Dawes | 7.94 | |
| St. Louis & San Francisco—Empire to Lipsey | 4.74 | 57.60 |
| *Second Track* | | |
| Alabama, Tennessee & Northern—Not specified | 2.00 | |
| Louisville & Nashville—Decatur to Boyles, 87.94 miles; Athens to Decatur, 9.44 miles; total | 97.38 | |
| Nashville, Chattanooga & St. Louis—Bridgeport to state line | 2.90 | 102.28 |
| Total of all track | | 159.88 |

### ARIZONA

| *First Track* | | |
|---|---|---|
| Arizona Eastern (So. Pac.)—Miami to Live Oak, 2.19 miles; Inspiration Jct. to Inspiration, 0.75 miles; total | 2.94 | |
| El Paso & Southwestern—Lewis Springs to Fort Huachuca | 14.30 | |
| Western Arizona (A. T. & S. F. C. L.)—Chloride to Chloride Mines | 2.47 | 19.71 |

### ARIZONA (*Continued*)

| *Second Track* | | Miles. |
|---|---|---|
| Atchison, Topeka & Santa Fe Coast Lines—Cactus to Flagstaff, 43.30 miles; Ash Fork to Yampai, 49.61 miles; total | 92.91 | 92.91 |
| Total of all track | | 112.62 |

### ARKANSAS

| *First Track* | | |
|---|---|---|
| Ashley, Drew & Northern—Fountain Hill to Monticello | 22.00 | |
| Butler County—Piggott Jct. to Piggott, 8.50 miles; Piggott Jct. to Styra, 2 miles; total | 10.50 | |
| Kansas City & Memphis—East of Monte Ne | 1.00 | |
| Malvern & Camden (C. R. I. & P.)—Malvern to Kent, 55.67 miles; Connection with St. L. S. W. at Kent, 0.52 miles; total | 56.19 | |
| Memphis, Dallas & Gulf—Not specified | 25.00 | |
| Pine Bluff, Sheridan & Southern—Between Sheridan and Saline river | 14.00 | |
| St. Louis, Iron Mountain & Southern (Mo. Pac.)—Between Marianna and West Memphis | 6.90 | |
| Warren, Johnsville & Saline River—Between Warren and Saline river | 3.70 | 139.29 |
| *Second Track* | | |
| Memphis, Dallas & Gulf—Not specified | 6.00 | 6.00 |
| Total of all track | | 145.29 |

### CALIFORNIA

| *First Track* | | |
|---|---|---|
| California & Oregon Coast—Crescent City east | 12.00 | |
| Central Pacific (So. Pac.)—Nevada state line to near Susanville | 43.39 | |
| Colusa & Hamilton (So. Pac.)—Near Grimes to Princeton | 25.61 | |
| Minkler Southern (A. T. & S. F. C. L.)—Cutler south to mile post 18, 18.00 miles; Cutler north to mile post 17, 17.00 miles; total | 35.00 | |
| Mt. Tamalpais & Muir Woods—Muir Inn to Muir Woods | 0.75 | |
| Nevada County Narrow Gage—Junction to Bear River Gravel Pit | 1.50 | |
| Northwestern Pacific—Between Willits and Shively | 21.16 | |
| San Diego & Arizona—Between Dixieland and Coyote Wells | 5.00 | |
| Trona Railway—Searles towards Trona | 20.00 | 164.41 |
| *Second Track* | | |
| Atchison, Topeka & Santa Fe Coast Lines—Colorado river to Needles, 11.49 miles; Summit to Keenbrook, 12.64 miles; between Calwa and Fresno, 0.69 miles; total | 24.82 | |
| Central Pacific (So. Pac.)—Blue Canon to near Magra, 16.30 miles; Winsted to Nevada state line, 19.61 miles; total | 35.91 | |
| Southern Pacific—Benicia to Sacramento | 4.42 | 65.15 |
| Total of all track | | 229.56 |

### COLORADO

| *First Track* | | |
|---|---|---|
| Denver & Salt Lake—Steamboat Springs to Craig | 40.60 | |
| San Luis Central—Monte Vista to Center | 12.50 | 53.10 |
| Total of all track | | 53.10 |

### CONNECTICUT

| *Second Track* | | |
|---|---|---|
| New York, New Haven & Hartford—Between Berkshire Jct. and New Milford | 9.16 | 9.16 |
| Total of all track | | 9.16 |

### FLORIDA

| *First Track* | | |
|---|---|---|
| Atlantic Coast Line—Archer to Morristown | 20.00 | |
| Charlotte Harbor & Northern—Bruce to Ridgewood | 4.50 | |
| Florida East Coast—Tohopkee to Lokosee | 40.00 | |
| Gulf, Florida & Alabama—West Pensacola to Goulding | 2.50 | |
| Live Oak, Perry & Gulf—Hampton Springs to Loughridge | 15.00 | |
| St. Petersburg & Gulf—Not specified | 6.00 | |
| Seaboard Air Line—Mulberry to Bartow, 8.42 miles; Royster Jct. to Royster Mines, 3.44 miles; total | 11.86 | |
| South Georgia—Perry to Hampton Springs | 5.00 | 104.86 |
| Total of all track | | 104.86 |

### GEORGIA

| *First Track* | | |
|---|---|---|
| Atlantic Coast Line—Saffold west | 1.00 | |
| Brinson Railway—Waynesboro to St. Clair | 13.00 | |
| Elberton & Eastern—Between Elberton and Tignall | 9.80 | |
| Gainesville & Northwestern—Between Gainesville and Helen | 1.00 | |
| Georgia Coast & Piedmont—Between Darien and Brunswick | 10.60 | |
| Hawkinsville & Western—Grovania to Perry | 10.58 | |
| Ocilla Southern—South of Rochelle | 10.00 | |
| Pelham & Havana—Between Cairo and Dorsey | 4.00 | |
| Rome & Northern—Spur line Shackelton to Taylors Ridge | 2.00 | |
| Waycross & Western—Between Waycross and Sirmans | 20.00 | 81.98 |
| *Second Track* | | |
| Southern Railway—Gainesville to Crosskeys, 8.60 miles; Roseland to Constitution, 2.77 miles; total | 11.37 | 11.37 |
| Total of all track | | 93.35 |

### IDAHO

| *First Track* | | |
|---|---|---|
| Chicago, Milwaukee & St. Paul—Washington state line to Plummer Jct. | 15.00 | |
| Nezperce & Idaho—Lewiston to Front | 4.50 | |
| Oregon Short Line—Big Eddy to Donnelly, 41.26 miles; State line to Homedale, 7.48 miles; Driggs to Victor, 8.43 miles; total | 57.17 | 76.67 |

IDAHO (*Continued*)

*Second Track*

| | | Miles. |
|---|---|---|
| Oregon Short Line—Lava to McCammon, 13.92 miles; Pocatello to Michaud, 9.98 miles; total | 23.90 | 23.90 |
| Total of all track | | 100.57 |

ILLINOIS

*First Track*

| | | |
|---|---|---|
| Alton & Southern—From Mississippi river at a point south of East St. Louis north to end of track | 12.00 | |
| Chicago & Alton—Eldred south | 6.36 | |
| Hooppole, Yorktown & Tampico—At Tampico | .50 | |
| Macoupin County Extension (C. & N. W.)—Near Benld to near Staunton | 4.36 | |
| St. Louis, Peoria & North Western (C. & N. W.)—Near Peoria to near Girard | 90.74 | 113.96 |

*Second Track*

| | | |
|---|---|---|
| Chicago, Burlington & Quincy—Galesburg to Brick Yard Switch, 1.67 miles; Shattuc to Centralia, 6.04 miles; Pisgah to Franklin, 5.28 miles; Waverly to Virden, 11.34 miles; Adair to Bushnell, 8.23 miles; Centralia south, 2.23 miles; total | 34.79 | 34.79 |

*Third Track*

| | | |
|---|---|---|
| Chicago, Burlington & Quincy—Galesburg to Watega, 6.83 miles; Belmont to Eola, 12.02 miles; total | 18.85 | |
| Pennsylvania Lines West—At Chicago | 0.94 | 19 79 |

*Fourth Track*

| | | |
|---|---|---|
| Pennsylvania Lines West—At Chicago | 1.02 | 1.02 |
| Total of all track | | 169.56 |

INDIANA

*First Track*

| | | |
|---|---|---|
| Illinois Central—From 2.11 miles south of Bloomington to 8.85 miles south | 6.74 | 6.74 |

*Second Track*

| | | |
|---|---|---|
| Baltimore & Ohio—At Clark Junction | 0.12 | |
| Chicago & Erie (Erie—Between Ohio state line and Laketon, 58.00 miles; Akron to Lomax, 46.00 miles; total | 104.00 | 104.12 |

*Fourth Track*

| | | |
|---|---|---|
| Pennsylvania Lines West—Adams to Fort Wayne | 2.43 | 2.43 |
| Total of all track | | 113.29 |

IOWA

*First Track*

| | | |
|---|---|---|
| Cedar Rapids & Iowa City—Cedar Rapids to Mt. Vernon | 15.00 | |
| Iowa Southern (C. & N. W.)—Near Miami to near Lovillia | 12.25 | |
| St. Paul & Kansas City Short Line (C. R. I. & P.)—At East Des Moines | 1.41 | 28.66 |

*Second Track*

| | | |
|---|---|---|
| Chicago, Milwaukee & St. Paul—Oxford Jct. to Coon Rapids | 150.00 | 150.00 |
| Total of all track | | 178.66 |

KANSAS

*First Track*

| | | |
|---|---|---|
| Anthony & Northern—Pratt to Iuka | 6.00 | |
| Dodge City & Cimarron Valley (A. T. & S. F.)—Between Hugoton and Elkhart | 30.21 | 36.21 |
| Total of all track | | 36.21 |

KENTUCKY

*First Track*

| | | |
|---|---|---|
| Big Sandy & Kentucky River—Between Dawkins and Riceville | 9.50 | |
| Elkhorn & Beaver Valley (C. & O.)—Beaver Creek to mouth of Steel Creek | 21.00 | |
| Kentucky, Rockcastle & Cumberland—Not specified | 7.00 | |
| Owingsville & Olympia—Owingsville to Olympia | 9.00 | |
| Williamson & Pond Creek (N. & W.)—Not specified, 0.31 mile; branch lines in Pike county, 1.53 miles; total | 1.84 | 48.34 |

*Second Track*

| | | |
|---|---|---|
| Cincinnati, New Orleans & Texas Pacific—Erlanger to Crittenden, 18.00 miles; Greenwood to Cumberland Falls, 4.54 miles; total | 22.54 | |
| Louisville & Nashville—Between Paris and Winchester | 20.58 | 43.12 |
| Total of all track | | 91.46 |

LOUISIANA

*First Track*

| | | |
|---|---|---|
| Alexandria & Western—Alexandria to Gardner | 12.50 | |
| Louisiana & Arkansas—Jena to Wildsville Jct | 23.68 | |
| Ouachita & Northwestern—Not specified | 4.00 | |
| St. Elmo & Belle Helene & Louisiana Eastern—St. Elmo to Lorio | 4.25 | 44.43 |
| Total of all track | | 44.43 |

MAINE

*First Track*

| | | |
|---|---|---|
| Aroostook Valley—Carson to Caribou | 7.20 | 7.20 |
| Total of all track | | 7.20 |

MARYLAND

*First Track*

| | | |
|---|---|---|
| Western Maryland—Cumberland to West Virginia state line | 0.23 | 0.23 |

MARYLAND (*Continued*)

*Second Track*

| | | Miles. |
|---|---|---|
| Western Maryland—City Jct. Cumberland to West Virginia state line, 1.23 miles; between North Junction and Hagerstown, 0.31 miles; total | 1.54 | 1.54 |
| Total of all track | | 1.77 |

MASSACHUSETTS

*First Track*

| | | |
|---|---|---|
| Hampden—Between Springfield and Bondsville | 9.82 | 9.82 |

*Second Track*

| | | |
|---|---|---|
| Boston & Albany—East Somerville to Chelsea | 0.75 | 0.75 |

*Third Track*

| | | |
|---|---|---|
| Boston & Albany—So. Framingham to Ashland | 1.70 | 1.70 |
| Total of all track | | 12.27 |

MICHIGAN

*First Track*

| | | |
|---|---|---|
| Bay City Terminal (Grand Trunk)—West Bay City to Bay City | 1.18 | |
| Boyne City, Gaylord & Alpena—Gaylord east, 23.00 miles; Alpena west, 21.50 miles; total | 44.50 | |
| Chicago, Milwaukee & St. Paul—Crystal Falls to Iron River | 21.00 | |
| Copper Range—Painesdale to point two miles north of Towola | 4.00 | |
| Detroit, Bay City & Western—Wilmot to Snover | 11.30 | |
| Detroit Terminal—Greenfield to M. C. R. R. west | 3.20 | |
| Detroit & Huron (Grand Trunk)—Between Cass City and Bad Axe | 18.75 | 103.93 |
| Total of all track | | 103.93 |

MINNESOTA

*First Track*

| | | |
|---|---|---|
| Duluth & Iron Range—Robinson to Burnside Lake | 3.16 | |
| Minneapolis, St. Paul & Sault Ste. Marie—Range Junction to Riverton, 3.36 miles; Ironhub to Iron Mt. Mine, 8.21 miles; total | 11.57 | |
| Minnesota & International (Nor. Pac.)—W. Brainerd to Leaks | 5.80 | 20.53 |

*Second Track*

| | | |
|---|---|---|
| Chicago, Milwaukee & St. Paul—Minneapolis to Montevideo | 40.00 | |
| Great Northern—Congo to Wawina | 23.39 | |
| Minneapolis, St. Paul & Sault Ste. Marie—Shoreham, Minneapolis to Cardigan Junction | 7.15 | 70.54 |
| Total of all track | | 91.07 |

MISSISSIPPI

*First Track*

| | | |
|---|---|---|
| Batesville Southwestern—Batesville to Crowder | 2.00 | |
| Meridian & Memphis—Meridian A. & V. Ry. Junction to Union | 29.00 | |
| Natchez, Columbia & Mobile—Between Jay Ess and Tilton, 9.00 miles; branches from Camp 14 to timberland, 7.00 miles; total | 16.00 | 47.00 |

*Second Track*

| | | |
|---|---|---|
| Yazoo & Mississippi Valley (Ill. Central)—Lake View to Lake Cormorant | 7.58 | 7.58 |
| Total of all tracks | | 54.58 |

MISSOURI

*First Track*

| | | |
|---|---|---|
| Butler County—Linstead to Broseley | 9.25 | |
| Shelby County—Shelbyville to Novelty | 21.00 | 30.25 |

*Second Track*

| | | |
|---|---|---|
| Chicago, Burlington & Quincy—Between Nodaway and Forbes | 2.11 | |
| St. Louis Southwestern—Between Illmo and Rockview, 0.13 miles; between Paront and Dexter, 1.39 miles; total | 1.52 | 3.63 |
| Total of all track | | 33.88 |

MONTANA

*First Track*

| | | |
|---|---|---|
| Billings & Central Montana—Between Billings and Bench siding No. 5 | 12.80 | |
| Chicago, Milwaukee & St. Paul—Lewistown to Great Falls, 135.25 miles; Hilger to Roy, 26.00 miles; Lewistown to Grass Range, 34.50 miles; Colorado Junction to Finley formerly Cliff Jct.), 13.20 miles; total | 208.95 | |
| Great Falls & Teton County (Great Northern)—Power to Bynum | 43.09 | |
| Great Northern—Plentywood to Scobey | 44.65 | |
| Minneapolis, St. Paul & Sault Ste. Marie—North Dakota state line west to Whitetail | 57.19 | |
| Union Pacific—Gering to 1.53 west of Haig | 8.43 | 375.11 |

*Second Track*

| | | |
|---|---|---|
| Chicago, Milwaukee & St. Paul—Lewistown on Great Falls Line | 1.75 | 1.75 |
| Total of all track | | 376.86 |

NEBRASKA

*First Track*

| | | |
|---|---|---|
| Hastings & Northwestern (U. P.)—Hastings to Gibbon | 26.47 | 26.47 |

NEBRASKA (*Continued*)

*Second Track*

| | | Miles. |
|---|---|---|
| Missouri Pacific—Between South Omaha and Omaha | 4.89 | |
| Union Pacific—Herdon to Dix, 15.77 miles; Kimball to Wyoming state line, 21.14 miles; total | 36.91 | 41.80 |
| Total of all track | | 68.27 |

NEVADA

*First Track*

| | | |
|---|---|---|
| Central Pacific (So. Pac.)—Near Heslip to California state line | 49.09 | |
| Western Pacific—0.58 mile east of Silver Zone to 0.23 mile west of Proctor | 10.47 | 59.56 |

*Second Track*

| | | |
|---|---|---|
| Central Pacific (So. Pac.)—Between Nenzel (formerly Oreana) and Rose Creek, 29.72 miles; California state line to Lawton, 9.06 miles; total | 38.78 | 38.78 |
| Total of all track | | 98.34 |

NEW HAMPSHIRE

*First Track*

| | | |
|---|---|---|
| Boston & Maine—Dole Jct. to Brattleboro, Vt | 7.47 | 7.47 |
| Total of all track | | 7.47 |

NEW JERSEY

*First Track*

| | | |
|---|---|---|
| Central of New Jersey—Newark Transfer to Oak Island Junction | 1.10 | |
| Raritan River—On Sayreville branch | 0.37 | 1.47 |

*Second Track*

| | | |
|---|---|---|
| Central of New Jersey—Newark Transfer to Oak Island Junction | 1.10 | |
| Delaware, Lackawanna & Western—Bloomfield to Montclair | 1.45 | 2.55 |

*Third Track*

| | | |
|---|---|---|
| Lehigh Valley—Between Three Bridges and Stanton, 2.13 miles; South Somerville and west of Flagtown, 7.26 miles; total | 9.39 | |
| Philadelphia & Reading—Between Hopewell and Skillman | 3.20 | 12.59 |

*Fourth Track*

| | | |
|---|---|---|
| Lehigh Valley—Between South Somerville and west of Flagtown | 7.26 | |
| Philadelphia & Reading—Between Hopewell and Skillman | 2.40 | 9.66 |

*Fifth Track*

| | | |
|---|---|---|
| Central of New Jersey—At Cranford | 0.40 | 0.40 |

*Sixth Track*

| | | |
|---|---|---|
| Central of New Jersey—At Cranford | 0.94 | 0.94 |
| Total of all track | | 27.61 |

NEW MEXICO

*First Track*

| | | |
|---|---|---|
| El Paso & Southwestern—Whitewater to Tyrone | 13.00 | 13.00 |
| Total of all track | | 13.00 |

NEW YORK

*First Track*

| | | |
|---|---|---|
| New York, Auburn & Lansing—Not specified | 0.28 | |
| New York Central & Hudson River—At Grand Central Terminal, New York | 1.98 | 2.26 |

*Second Track*

| | | |
|---|---|---|
| Buffalo, Rochester & Pittsburgh—Rochester to Scottsville | 12.09 | |
| Central New England—St. Elmo to Berea, 0.85 miles; Clintondale to Loyd, 3.22 miles; total | 4.07 | |
| Erie Railroad—Salamanca to Steamburg | 11.80 | |
| Long Island—At new Jamaica terminal | 0.20 | |
| New York Central & Hudson River—Hollon to Lindley | 6.79 | |
| New York, Ontario & Western—At Cadosia | 0.25 | |
| Staten Island Railway (B. & O.)—Between Annadale and Princess Bay | 1.66 | 36.86 |

*Third Track*

| | | |
|---|---|---|
| Lehigh Valley—Between P. & L. Junction and Stafford | 8.07 | |
| Long Island—At new Jamaica terminal | 2.17 | |
| New York Central & Hudson River—Oscawana to Montrose, 1.92 miles; Rhinecliff to Barrytown, 5.70 miles; East Syracuse to Syracuse Junction, 6.27 miles; total | 13.89 | 24.13 |

*Fourth Track*

| | | |
|---|---|---|
| Long Island—At new Jamaica terminal | 2.29 | |
| New York Central & Hudson River—Oscawana to Montrose, 1.91 miles; Rhinecliff to Barrytown, 5.63 miles; total | 7.54 | 9.83 |
| Total of all track | | 73.08 |

NORTH CAROLINA

*First Track*

| | | |
|---|---|---|
| Black Mountain—Between Black Mountain Junction and Pensacola | 18.80 | |
| Carolina & Yadkin River—Thomasville to High Point | 10.00 | |
| Durham & South Carolina—Rollins Mill to Duncan | 4.00 | |
| Elkin & Allegheny—Thurmond to Doughton | 4.00 | |
| Raleigh, Charlotte & Southern (Nor. So.)—Mt. Gilead to Charlotte | 51.77 | |
| Watauga & Yadkin River—Minton to Grandin | 15.00 | 103.57 |
| Total of all track | | 103.57 |

NORTH DAKOTA

*First Track*

| | | Miles. |
|---|---|---|
| Fairmount & Veblen—Fairmount to Station 633+60 | 12.00 | |
| Great Northern—Between Niobe and International boundary | 18.69 | |
| Midland Continental—Jamestown Junction to Wimbledon | 27.40 | |
| Minneapolis, St. Paul & Sault Ste. Marie—Ambrose to Montana state line | 28.59 | |
| Montana Eastern (Great Northern)—Fairview, Mont., to Arnegaard | 30.40 | |
| Northern Pacific—Stanton to Olanta | 35.00 | 152.08 |
| Total of all track | | 152.08 |

OHIO

*First Track*

| | | |
|---|---|---|
| Lorain, Ashland & Southern—Ashland to Wellington, 24.00 miles; in Lorain, 4.00 miles; total | 28.00 | 28.00 |

*Second Track*

| | | |
|---|---|---|
| Baltimore & Ohio—Between The Bend and Defiance | 3.08 | |
| Chicago & Erie (Erie)—Between Marion and Indiana state line | 63.00 | |
| Norfolk & Western—Not specified | 0.36 | |
| Pennsylvania Lines West—Bayard to Kensington, 4.94 miles; west of Detour, 3.50 miles; at Youngstown, 0.77 miles; at Ashtabula, 1.17 miles; at Piqua, 1.66 miles; total | 12.04 | 78.48 |

*Third Track*

| | | |
|---|---|---|
| Lake Shore & Michigan Southern—Through Sandusky | 2.89 | |
| Pennsylvania Lines West—At Piqua, 2.16 miles; Smithville to Burton City, 8.74 miles; total | 10.90 | 13.79 |

*Fourth Track*

| | | |
|---|---|---|
| Lake Shore & Michigan Southern—At Millbury, 0.75 miles; through Sandusky, 2.41 miles; through Amherst, 1.66 miles; from Madison to Saybrook, 9.96 miles; total | 14.78 | 14.78 |
| Total of all track | | 135.05 |

OKLAHOMA

*First Track*

| | | |
|---|---|---|
| Clinton & Oklahoma Western—Branch south to Cheyenne | 4.00 | |
| Oklahoma, New Mexico & Pacific—Ardmore west | 30.00 | 34.00 |
| Total of all track | | 34.00 |

OREGON

*First Track*

| | | |
|---|---|---|
| California & Oregon Coast—Grants Pass west | 10.00 | |
| Clackamas Southern—Oregon City to Beaver Creek | 6.75 | |
| Columbia & Nehalem—Not specified | 0.50 | |
| Oregon Short Line—Nyssa to the state line | 17.75 | |
| Oregon-Washington Railroad & Navigation Co.—Namorf to Juntura | 24.10 | |
| Portland, Eugene & Eastern—Canby to Molalla, 10.31 miles; Monroe to Eugene, 22.44 miles; Salem to West Salem, 0.91 miles; total | 33.66 | |
| C. A. Smith Timber Company's Line—Not specified | 14.00 | |
| Willamette-Pacific (So. Pac.)—Near Eugene to first crossing of Noti creek | 16.13 | 122.89 |

*Second Track*

| | | |
|---|---|---|
| Oregon-Washington Railroad & Navigation Co.—At The Dalles | 1.14 | 1.14 |
| Total of all track | | 124.03 |

PENNSYLVANIA

*First Track*

| | | |
|---|---|---|
| Buffalo, Rochester & Pittsburgh—Between Lucerne Junction and Luciusboro | 5.40 | |
| Lehigh & New England—Clyde to Catasauqua | 5.44 | |
| Montour Railroad—Between North Star and Longview | 4.00 | |
| New York Central & Hudson River—Extension of Carnwath line, 2.09 miles; extension of Emigh Run branch, 0.32 miles; total | 2.41 | |
| Pennsylvania Railroad—Including Bostonia branch, Mt. Eagle cut-off and extensions to Apollo, Jeanette, Turtle creek and Manor branches, also Hillman branch and Pennsylvania, Monon & Southern | 10.67 | |
| Pittsburgh, Shawmut & Northern—Mahoning to Kittanning | 10.84 | |
| Susquehanna & New York—Wheelerville to different logging operations | 12.00 | 50.76 |

*Second Track*

| | | |
|---|---|---|
| Baltimore & Ohio—Between Rockwood and Garrett | 2.00 | |
| Bessemer & Lake Erie—Between Culmerville and Woods | 2.06 | |
| Chicago & Erie (Erie)—Concord to Meadville | 36.30 | |
| New York, Ontario & Western—Between Carbondale and Mayfield | 2.00 | 42.36 |

*Third Track*

| | | |
|---|---|---|
| Baltimore & Ohio—Between Rockwood and Garrett | 6.70 | |
| Delaware, Lackawanna & Western—Analomink to Henryville | 3.16 | |
| Lehigh Valley—Between Tunkhannock and Tagues Eddy | 1.37 | |
| Philadelphia, Newton & New York (P. & R.)—Olney to Frankfort Jct. | 0.50 | 11.73 |

*Fourth Track*

| | | |
|---|---|---|
| Philadelphia & Reading—Between Woodbourne and Yardley | 4.20 | 4.20 |
| Total of all track | | 109.05 |

RHODE ISLAND

*Second Track*

| | | |
|---|---|---|
| New York, New Haven & Hartford—East Providence to Rumford | 2.48 | 2.48 |
| Total of all track | | 2.48 |

### South Carolina

*First Track*

| | | Miles. |
|---|---|---|
| Bamberg, Ehrhardt & Waterboro—Between Ehrhardt's and Bamberg | 5.00 | |
| Marion & Southern—Gum Swamp to Brownsville | 3.00 | |
| Orangeburg Railway—Raymond to Orangeburg | 7.70 | |
| South Carolina Western—Lydia via Lamar to Timmonsville | 17.00 | 32.70 |
| *Second Track* | | |
| Atlantic Coast Line—Lanes to Santee river | 4.00 | |
| Orangeburg Railway—Not specified | 1.00 | 5.00 |
| Total of all track | | 37.70 |

### South Dakota

*First Track*

| | | |
|---|---|---|
| Fairmount & Veblen—Station 633+60 to Veblen | 38.00 | 38.00 |
| *Second Track* | | |
| Chicago, Milwaukee & St. Paul—Milbank to Aberdeen | 101.00 | 101.00 |
| Total of all track | | 139.00 |

### Tennessee

*First Track*

| | | |
|---|---|---|
| Louisville & Nashville—North of Lewisburg, 3.00 miles; Maplewood to Cumberland river bridge, 5.02 miles; Cumberland river bridge to Alabama state line, 81.32 miles; total | 89.34 | |
| Southern Railway (Belt line)—Knoxville to Holston river | 5.35 | |
| Tennessee Western (L. & N.)—Iron City to Collinwood | 16.60 | 111.29 |
| *Second Track* | | |
| Cincinnati, New Orleans & Texas Pacific—Boyce to Citico | 2.16 | |
| Louisville & Nashville—Maplewood to Columbia river bridge | 4.76 | |
| Nashville, Chattanooga & St. Louis—Shellmound to state line, 2.90 miles; Wauhatchie to Chattanooga, 3.50 miles; total | 6.40 | |
| Southern Railway—At Citico Junction | 0.49 | 13.81 |
| Total of all track | | 125.10 |

### Texas

*First Track*

| | | |
|---|---|---|
| Bryan & Texas Central Interurban—Between Bryan and Wilcox | 18.00 | |
| Burr's Ferry, Browndel & Chester (S-C. L.)—Turpentine to end of track | 3.26 | |
| Galveston Wharf Co.—At Galveston | 0.53 | |
| Houston & Texas Central (S-C. L.)—Giddings to Stone City, 39.27 miles; Eureka to Stella, 9.50 miles; total | 48.77 | |
| Kansas City, Mexico & Orient—From 4.85 miles west of Belding to Alpine, 46.64 miles; between Del Rio Junction and Del Rio, 2.60 miles; total | 49.24 | |
| Nacogdoches & South Eastern—Dunham to La Cerda | 2.20 | |
| Pecos & Northern Texas (A. T. & S. F.)—Lubbock Junction to Farwell | 87.70 | |
| Quanah, Acme & Pacific—Paducah to Roaring Springs | 40.00 | |
| Riviera Beach & Western—Riviera Beach to Riviera | 10.70 | |
| San Antonio, Fredericksburg & Northern—Fredericksburg Junction to Fredericksburg | 24.00 | |
| San Antonio, Uvalde & Gulf—Between Pleasanton and Odern | 62.00 | |
| San Benito & Rio Grande Valley—Monte Christo north | 2.00 | |
| Scholten Bros. Cedar Co.'s Line—Not specified | 8.00 | 356.40 |
| *Second Track* | | |
| Galveston Wharf Co.—At Galveston | 4.63 | |
| Missouri, Kansas & Texas—Waco to Hewitt | 6.00 | 10.63 |
| Total of all track | | 367.03 |

### Utah

*First Track*

| | | |
|---|---|---|
| Bingham & Garfield—Auxiliary yard to G. Level, 1.99 miles; Q. Level to W. Level, 2.49 miles; Coon to end of spur, 1.75 miles; total | 6.23 | |
| Salt Lake & Alta—Sandy to Wasatch | 8.00 | |
| San Pedro, Los Angeles & Salt Lake—York to Payson | 1.36 | |
| Utah Railway—Not specified | 1.50 | 17.09 |
| Total of all track | | 17.09 |

### Vermont

*First Track*

| | | |
|---|---|---|
| Barre & Chelsea (B. & M.)—At Barre Quarries | 2.46 | |
| Vermont Valley—In Brattleboro | 0.50 | 2.96 |
| Total of all track | | 2.96 |

### Virginia

*First Track*

| | | |
|---|---|---|
| Lyndhurst Lumber Corporation Lines—Lipscomb to Mills creek | 8.00 | |
| Norfolk & Western—Dry Fork branch and connections between West Virginia state line and Cedar Bluff, 12.15 miles; at Basic, 0.31 miles; at Cedar Bluff, 0.36 miles; total | 12.82 | |
| Southern Railway—From near Forbes to ore property | 2.72 | 23.54 |
| *Second Track* | | |
| New York, Philadelphia & Norfolk—Between Keller and Exmore | 4.11 | |
| Norfolk & Portsmouth Belt—Port Norfolk to Portsmouth | 3.44 | |
| Norfolk & Western—Not specified | 51.19 | |
| Southern Railway—Monroe to Amherst | 6.81 | 65.55 |
| Total of all track | | 89.09 |

### Washington

*First Track*

| | | Miles. |
|---|---|---|
| Chicago, Milwaukee & St. Paul—Beverly Junction to Hanford, 41.75 miles; in Spokane, 1.60 miles; Bell Junction to Idaho state line, 4.90 miles; total | 48.25 | |
| Great Northern—Between Wenatchee & Oroville | 111.65 | |
| Meskill & Columbia River—Mays to Hope Creek | 2.50 | |
| Montana Eastern (Gt. Nor.)—Between Snowden and Sydney | 18.70 | |
| Northern Pacific—Between Tacoma and Tenino | 11.21 | |
| North Yakima & Valley—Cowiche Junction to Spitzenburg | 1.95 | |
| Oregon-Washington Railroad & Navigation Co.—Between Ayer Junction and Spokane | 14.80 | 209.06 |
| *Second Track* | | |
| Chicago, Milwaukee & St. Paul—At Spokane | 1.60 | 1.60 |
| Total of all track | | 210.66 |

### West Virginia

*First Track*

| | | |
|---|---|---|
| Chesapeake & Ohio—Helen to end of line up Spruce Fork | 8.60 | |
| Clarksburg & Northern—New Martinsville to Middlebourne | 13.00 | |
| Gauley & Meadow River (C. & O.)—Rich Creek Jct. to Marshall | 3.00 | |
| Logan & Southern (C. & O.)—Monitor Tipple No. 1 to Mouth Cow Creek | 7.80 | |
| Norfolk & Western—Between Virginia state line and Canebrake, 2.56 miles; King branch west of West Vivian, 1.40 miles; total | 3.96 | |
| Twin Mountain & Potomac—Barkville to Twin Mountain | 7.00 | |
| Western Maryland—Maryland state line to west end Ridgely yard | 0.25 | 43.61 |
| *Second Track* | | |
| Norfolk & Western—Not specified | 0.33 | 0.33 |
| *Third Track* | | |
| Baltimore & Ohio—Between Green Spring and Okonoke | 4.64 | 4.64 |
| Total of all track | | 48.58 |

### Wisconsin

*First Track*

| | | |
|---|---|---|
| Fairchild & North Eastern—Strader to Foster | 9.00 | |
| Wisconsin & Northern—North of Van Ostrand | 0.38 | 9.38 |
| *Second Track* | | |
| Chicago, Burlington & Quincy—McCartney to Bagley, 22.94 miles; Prairie du Chien to Charme, 6.85 miles; De Sota to Victory, 4.82 miles; Purdy to Alma, 13.49 miles; total | 48.10 | |
| Chicago, St. Paul, Minneapolis & Omaha—Knapp to Northline | 30.29 | 78.39 |
| Total of all track | | 87.77 |

### Wyoming

*First Track*

| | | |
|---|---|---|
| Chicago, Burlington & Quincy—East of Thermopolis to Casper | 53.00 | |
| Union Pacific—Lion Junction to Lion | 2.53 | 55.53 |
| *Second Track* | | |
| Oregon Short Line—Diamondville to Fossil | 12.38 | |
| Union Pacific—Nebraska state line to Pine Bluffs | 2.15 | 14.53 |
| Total of all track | | 70.06 |

### Canada

*First Track*

| | | |
|---|---|---|
| Algoma Central & Hudson Bay—In Ontario, one mile north of Oba to Hearst | 49.47 | |
| Algoma Eastern (A. C. & H. B.)—In Ontario, from end of track to Little Current on Manitoulin Island | 6.57 | |
| Campbellford, Lake Ontario & Western (Can. Pac.)—Glen Tay, Ont., to Agincourt | 182.60 | |
| Canadian Northern—In British Columbia, 6.07 miles; Alberta, 256.89 miles; Saskatchewan, 166.82 miles; Manitoba, 65.66 miles; total | 495.44 | |
| Canadian Northern Ontario (Can. Nor.)—In Quebec, various sections on Island of Montreal, 8.00 miles; Ontario, between Ottawa and Port Arthur, 536.00 miles; between Sydenham and Ottawa, 36.00 miles; total | 580.00 | |
| Canadian Northern Pacific (Can. Nor.)—In British Columbia, Hope to Cisco, 62.00 miles; Kamloops north to Cottonwood, 123.00 miles; Westminster to Steveston, Lulu Island, 12.00 miles; between Cisco and Kamloops, 9.00 miles; total | 206.00 | |
| Canadian Pacific—In Manitoba, Snowflake west, 10.00 miles; Virden branch between Virden and McAuley, 23.00 miles; between Boissevain and Lauder, 35.00 miles; in Saskatchewan, Estevan northwest, 47.00 miles; Kerrobert northeast, 22.00 miles; between Swift Current, Sask., and Bassano, Alta., 60.8 miles; between Weyburn, Sask., and Stirling, Alta., 162.00 miles; in Alberta, Suffield southwest, 32.3 miles; between Gleichen and Shepard, 25.00 miles; on Alberta Central branch, 40.00 miles; Lacombe east, 8.00 miles; in British Columbia, on Kootenay Central, 19.7 miles; on Whitewater-Kaslo line, 16.00 miles; total | 500.80 | |
| Esquimault & Nanaimo (Can. Pac.)—McBride Junction to Little Jualienne river | 8.50 | |
| Fredericton & Grand Lake Coal & Railway (Can. Pac.)—In New Brunswick, Mile 11 to Mile 23 | 12.00 | |
| Grand Trunk Pacific—In Saskatchewan, Cut Knife branch, 30.00 miles; Biggar-Calgary branch, 67.00 miles; Prince Albert branch 8.00 miles; Moose Jaw northwest branch, 52.00 miles; Regina Boundary branch, 48.00 miles; in Alberta, Tofield-Calgary branch, 36.00 miles; in British | | |

CANADA. (*Continued.*)

| | Miles. | |
|---|---|---|
| Columbia, west of Yellowhead, 122.00 miles; and east of Prince Rupert, 117,00 miles; total | 480.00 | |
| Hudson Bay—Between The Pas, Man., and Port Nelson | 100.00 | |
| Intercolonial—Georges river, N. S., to Sydney mines | 8.80 | |
| Interprovincial & James Bay Ry. (Can. Pac.)—Lumsden's Mills, Que., north | 10.00 | |
| Kettle Valley—In British Columbia | 80.00 | |
| National Transcontinental Railway (Grand Trunk Pacific)—In province of Quebec, 88.26 miles; Manitoba, 2.22 miles; total | 90.48 | |
| Pacific Great Eastern—Between North Vancouver, B. C., and Dundrave, 4.50 miles; between Newport, B. C., and Cheakamus, 13.50 miles; total | 18.00 | |
| Quebec Central—St. Sabine, Dorchester county, to St. Camille, Bellechase county | 5.00 | |
| Reid Newfoundland Co.—In Newfoundland, Trepassey branch, Biscay Bay to Trepassey, 5.00 miles; Carbonear to Bay-de-Verde, 53.00 miles; Goobies to Black River, 15.00 miles; extension Heart's Content branch to Heart's Content, 1.00 mile; total | 74.00 | |
| St. John & Quebec—Between Centerville, N. B., and Gagetown | 90.00 | |
| Sydney & Louisburg—Waterford Lake, N. S., to Victoria Mines, 1.00 mile; Morien Junction to Morien Village, 2.00 miles; total | 3.00 | |
| Temiskaming & Northern Ontario—Porquis Junction, Ont., to Iroquois Falls | 7.25 | |
| Vancouver, Victoria & Eastern (Gt. Nor.)—Between Kilgard, B. C., and Sumas Landing | 5.05 | 3,012.96 |
| *Second Track* | | |
| Canadian Pacific—Farnham, Que., to St. Johns, 12.70 miles; Agincourt, Ont., to Leaside Jct., 6.20 miles; Islington, Ont., to Guelph Jct., 29.20 miles; between Azilda, Ont., and Cartier, 9.50 miles; between Nemegos, Ont., and Devon, 12.40 miles; between Esper, Ont., and Shumka, 16.90 miles; between Tarpon, Ont., and Mobert, 11.50 miles; between Navilus, Ont., and Port Arthur, 1.60 miles; between Selim, Ont., and Paysiplate, 7.00 miles; between Gravel, Ont., and Dublin, 11.00 miles; Bergen, Man., northeast, 20.00 miles; between Kemnay, Man., and Virden, 35.00 miles; between Whitewood, Sask., and Grenfell, 8.00 miles; between Indian Head, Sask., and Regina, 21.60 miles; between Regina, Sask., and Pasqua, 12.00 miles; between Caron, Sask., and Java, 66.70 miles; between Ruby Creek, B. C., and Hammond, 59.00 miles; total | 340.30 | |
| Toronto, Hamilton & Buffalo—Welland, Ont., to Fenwick | 5.91 | |
| Vancouver, Victoria & Eastern (Great Northern)—Ardley, B. C., to Still Creek | 7.12 | 353.33 |
| Total of all track | | 3,366.29 |

MEXICO

*First Track*

| | | |
|---|---|---|
| National Railways of Mexico—Kilo 90 west of Durango, Durango, to Llano Grande, 7,000 miles; Kilo 124 south of Penjamo, Michoacan, to Ajuno, 7.00 miles; Canitas, Zacatecas, west towards Durango, 4.00 miles; Kilo 53 east of Rives, Veracruz, to San Andres Tuxtla, 12.00 miles; total | 30.00 | |
| San Diego & Arizona—Ville Redondo, Lower California, to Dupes | 8.20 | 38.20 |
| Total of all track | | 38.20 |

AN ENGLISH SCHEME TO QUICKEN SUBWAY TRAIN SERVICE.—On December 8 the Central London introduced a new idea to quicken the service on its subway trains during the busy hours. In the future, from about 8 o'clock to 10 in the morning, and from 4 in the afternoon until about 7, one station stop will be omitted by all trains. There are but three stations at which the stops will be omitted. Each train will successively omit but one stop on its trip. Thus the first train will omit stop *A*, the second stop *B*, and the third stop *C*, and so on. It is expected that the time saved will amount to one minute for each round trip. There will be no other curtailment of service excepting that for the three stations, and even then each of these will lose but one of every three trains.

THE POSTAL SERVICE OF CHINA.—The report of the Chinese Postal administration for 1912, recently issued, shows that steady and gratifying progress has been made. The striking feature of the year is, perhaps, the enormous development of the newspaper business. This is largely due, of course, to the overthrow of the Manchu dynasty. At the present time the courier lines are about 108,300 miles long; the native boat lines about 9,000 miles; the steamer lines, 9,700 miles, and the railway lines 6,000. The native postal hongs, or agencies, still carry on operations, a thing which is significant of the tenacity of institutions in China. Nevertheless, their activities are being greatly curtailed and in all probability will disappear before very long. One of the longest courier lines is 3,677 miles long, extending from the Eastern railway base to the extreme western boundary of the republic.

## CHICAGO, MILWAUKEE & ST. PAUL MOUNTAIN LINE ELECTRIFICATION

A decision has just been reached to begin actual construction on the electrification of one engine district of the Chicago, Milwaukee & St. Paul, between Three Forks, Mont., and Deer Lodge, which is part of the project to electrify the line between Harlowton, Mont., and Avery, Idaho, 440 miles across the Belt, Rocky and Bitter Root mountain ranges. This project was announced in the *Railway Age Gazette* of January 10, 1913, and additional details were published in the issue of May 2, 1913. The line between Harlowton and Avery includes four engine districts, with maximum grades of 2 per cent., 1.7 per cent., 1 per cent. and .4 per cent., respectively.

The engine district between Three Forks and Deer Lodge, with the Butte terminals, will be undertaken first, as it includes the maximum grade of 2 per cent. for 20.8 miles ascending the eastern slope of the Rockies. This district is 113 miles long and, with passing tracks, sidings and yard tracks, includes a total of approximately 168 miles of track. It is the present intention to undertake the electrification of an additional engine district each year until the entire line between Harlowton and Avery has been electrified.

It has been decided to adopt the 2,400-volt direct current system of propulsion, utilizing the regenerative electric braking feature, which will take the place of the air brakes on the mountain grades. This is the system which has been applied by the General Electric Company in the electrification of the Butte, Anaconda & Pacific, except that the regenerative electric braking feature is not used on that road, and it is expected that in large measure the details of that installation will be used on the Milwaukee with such modifications as are necessary to meet the conditions imposed by trunk line operation. It is expected to operate this district with twelve 200-ton freight locomotives, four 200-ton through passenger locomotives and two 100-ton local passenger locomotives. The switching will be done with electric locomotives. The locomotives will draw power from an overhead trolley line of the catenary type, reinforced by copper feeders, the return circuit consisting of a bonded track with supplementary return feeders. The trolley will be supplied with power from five sub-stations, located at Morel, Newcomb, Grace, Piedmont and Three Forks. These sub-stations will be connected to the feeding points established by the Great Falls Power Company, which will supply the electrical energy, by a 100,000-volt transmission line along the company's right of way for the entire length of the district. The estimated cost of the complete installation between Three Forks and Deer Lodge is about $1,500,000, exclusive of locomotives, but including all electrical apparatus, material, labor, sub-station buildings, overhead and track construction, and all incidental expense, except the changing of block signals from direct to alternating current.

The terms of the contract for the electrical energy guarantee a load factor of 60 per cent. In order to minimize peak loads it will probably be advisable to combine the duties of train despatcher and power despatcher, for since the train despatcher knows the location of all trains, he may be able to avoid an excessive peak in the energy consumption by delaying a freight train a short time at the foot of an excessive grade until the total load is reasonably low. Undue interruption to service need not follow, but a few minutes' delay to one train might be easily justified in order to prevent an advance in the monthly or yearly power rate. Assuming a minimum daily traffic of 10,000 tons in each direction, the power consumption on the Deer Lodge-Three Forks line is estimated at 47,000 k. w. hr. eastbound, and 47,900 k. w. hr. westbound. This would mean a yearly consumption of 34,600,000 k. w. hr., or practically 38,000,000 k. w. hr., including 10 per cent. excess for switching, starting of trains, etc.

The Great Falls Power Company proposes to deliver energy at seven points between Harlowton and Avery, but these do not in all cases co-incide with the proposed location of sub-stations, and the power company's lines will not serve the full number of

sub-stations required. It will be necessary, therefore, to tie in these feeding points to all of the sub-stations by a continuous transmission line following the right of way, except in cases where distance or excessive curvatures can be saved by cutting across the country. The high potential of 100,000 volts was adopted for the main transmission line on account of the great distance over which power will be carried. The use of the same high potential for the transmission line connecting the sub-stations will make it possible to shift the load without excessive loss. This pole line will be separate from the trolley pole line

The sub-station capacities have been designed to allow locomotives to be started at their full tractive power on the heaviest grades, and to accelerate at the rate of .15 m. p. h. per second. To take care of this demand it is proposed to equip each of the three sub-stations supplying those portions of the line with a gradient of over 1 per cent. with three 1,500-k. w. motor generator sets, one of which will be held as a reserve. Starting a train under the maximum conditions, therefore, requires practically 100 per cent. overload on the two units in operation. As these units will be built to operate at 200 per cent. overload for five minutes, there will be capacity for starting a train of maximum tonnage on the maximum grade immediately at the sub-station without using the reserve unit. The reserve units can be used to replace either one of the two normally in operation, and in extreme emergencies trains can even be operated with the locomotive motors connected in series so that they will demand only one-half the energy normally required with the motors in multiple. The two sub-stations supplying sections of the line with gradients up to 1 per cent. will be equipped with two 1,500-k. w. units. It is assumed that the consumption of current required to start a train will be practically the same on a 1 per cent. grade and on a level track, so that two-unit sub-stations are proposed for all gradients below 1 per cent. In these sub-stations one unit will be operated normally, with the second held as reserve for emergency, such as the disabling of the operating unit or a congestion of trains, which will require them to be operated at short intervals. Each unit in one of these sub-stations is capable of providing the energy required to start a 2,500-ton train on level track, and to operate a second train of equal weight at the full speed of 27 m. p. h., assuming that both trains are immediately adjacent to the sub-station and draw their entire energy from that station.

Each motor generator sub-station unit will comprise a 60-cycle synchronous motor direct connected to two 750-k. w. 1,200-volt direct current generators connected in series for 2,400 volts. The motor generator set will be fed from three single-phase, step-down transformers, reducing from the transmission potential of 100,000 volts to 2,300 volts at the terminals of the synchronous motor. Each set will be equipped with exciters, making the unit complete in itself. The sub-station buildings will be of brick on concrete foundations, with a concrete roof supported on steel girders. The transformers will be of the self oil-cooled type and will be placed in a separate transformer room, served by tracks to facilitate installation and repairs. The sub-stations will be of the so-called indoor type in order to insure the best results in operation.

The trolley construction will be the single pole bracket type wherever possible, as it offers less obstruction to the view and is less expensive. All poles will be of wood and will be guyed on curves. Where two or more tracks are to be spanned it will be necessary to resort to span construction, using wooden poles where the number of tracks does not exceed four, and steel poles for longer spans. The trolley wire will be located a minimum distance of 24 ft. above the rail. The corresponding clearance is 22 ft. on the Butte, Anaconda & Pacific, but on account of the miscellaneous character of rolling stock handled by the Milwaukee it was thought best to increase this by 2 ft. as a safety precaution. The trolley wire will be of copper of 4/0 cross section suspended from a steel catenary cable. The steel catenary will be supported by bracket arms from single poles except on the sharper curves, where poles will be set on both sides of the track and the trolley catenary suspended from a cross catenary. The trolley will be supplemented by a copper line wire in order to reduce the energy lost in the 2,400-volt conducting circuit.

The track rails will be bonded to form a return circuit, the type of bond not being definitely decided on. In addition to the rail bonding 4/0 track return line will be included, at least on the more severe grades. In addition to the economy effected in current consumption this return line has the advantage that it can be placed on the tops of the trolley poles and made to serve as a lightning arrester, also that it will span any open track section, eliminating the danger to trackmen.

The freight locomotives are designed to haul a trailing load of 2,500 tons on a 1 per cent. grade at a speed of 15 miles per hour. It is proposed to operate through freight trains with a maximum tonnage of 2,500 tons, using one locomotive on grades up to 1 per cent., and two locomotives between 1 per cent. and 2 per cent. The speed with which two locomotives can pull the maximum tonnage trains on a 2 per cent. grade will be approximately 15 miles per hour. These locomotives will weigh approximately 400,000 lb., with all of the weight on the drivers. Each locomotive will be handled by a single operator, but for convenience in shopping and making repairs, the locomotive can be divided into two 100-ton units which, if desirable, can be equipped with draft rigging and operated independently in switching service. The running gear is composed of four four-axle trucks articulated. Each axle is driven by a 2,400-volt direct current motor connected to it by twin gearing. Two superstructures rest upon the running gear and serve as housings for the air compressor and control apparatus. Each locomotive will be equipped with two air compressors of 150 cu. ft. piston displacement. The current will be collected from the overhead trolley by a roller pantograph collector.

The through passenger locomotives are to be designed to pull a 10-car passenger train weighing 1,000 tons with a speed of 24 miles per hour on a 2 per cent. grade. The locomotives will weigh 200 tons, all of which is on the drivers.

A separate type of electric locomotive for local passenger trains will be designed which will haul a 300-ton train at a maximum speed of 42 miles an hour on level track. This locomotive will probably have double end control to eliminate the necessity for turning.

All the locomotives will be provided with controlling apparatus, permitting the motors to be reversed on down grades so as to operate as generators, thus providing for regenerative electric braking. This feature will relieve the brake shoes and wheels entirely, as the air brakes will only be needed in case of emergency. The regenerative action returns to the power line from 25 per cent. to 50 per cent. of the energy required in up-grade movement, resulting in a considerable reduction in the power bill.

The method of heating passenger trains with electric operation has not been definitely decided on, although the proposed through passenger locomotive design leaves a limited amount of space available in the locomotive for a steam boiler heated by oil with a capacity sufficient to provide 150 lb. of steam per car for a 10-car train for 12 consecutive hours. If the double end control of local passenger locomotives is adopted, individual car heaters will have to be used, although it is possible that single end control may be substituted and the cab space thus made available will be used for an oil-fired heater.

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SOUTH AFRICAN RAILWAY ELECTRIFICATION.—In a recent number of the *South African Railway Magazine*, Mr. Robbins, electrical engineer to the Borough of Durban, discusses railway electrification of the South African railway system. He pays particular attention to the trunk line between Johannesburg and Durban, and believes that the project is quite feasible, for there is cheap current available at both ends and a third generating station might well be established midway on the Natal coal fields.

# Cars and Locomotives Built and Ordered in 1913

## The Output for the Year Was Good But the Amount of Equipment Ordered Has Been Quite Disappointing

The number of cars and locomotives built in the past year, as compared to previous years, indicates on the whole that the equipment builders have enjoyed a fairly satisfactory period. The figures for freight cars built show a decided increase over those of last year and have been exceeded in fact but two or three times in the past fifteen years. They do not, however, compare with the output figures of 1906 or 1907. Our returns this year have come from builders in both the United States and Canada and, as was the case last year, the output of the several railroad shops is also included. The returns indicate that the total number of freight cars built in 1913 was 207,684, and the total number of passenger cars 3,296. The figures for 1912 were 152,429 freight cars and 3,060 passenger cars.

As things look at the present time, it is quite doubtful whether next year's record will come up to that of this year. The large output in 1913 is very largely the result of the good buying movement of the year before. It will be remembered that the predictions of an enormous crop and an accompanying car shortage such as that of 1907 induced the railroads to order in large quantities for quick delivery. After that there was a return to more normal conditions. A great many of the builders had orders on hand at the close of 1912, 200 per cent. in excess of those on hand at the end of the year before. This year things are quite the opposite. The good spell has not continued. The market did remain fairly good for the early part of the year, but in the last few months orders have been comparatively few and small. It might well be said that the roads are proceeding very cautiously and that purchases are meant to cover but the most urgent needs. As a result, the builders report that the orders on hand this year compare most unfavorably with those on hand at the end of 1912. Most of the companies report decided decreases, some of the larger ones having orders on hand of but from 10 to 30 per cent. of those of last year.

Of the freight cars built in the past year, 198,066 were for domestic use and 9,618 for export; the latter figure, although still very small, has increased over 100 per cent. as compared to 1912. Of the passenger cars, 3,076 were for domestic service and 220 for export. Of the freight cars, 70,631 were of all-steel construction; 108,610 had steel underframes; 7,237 were of all-wood construction (only half the amount built in 1912); 21,206 were not specified. Of the passenger cars, 2,165 were of all-steel construction; 364 had steel underframes and 442 were of wood; 325 were not specified.

The decline which has taken place in the railway supply business shows up in a decided fashion in the case of orders, espe-

FREIGHT AND PASSENGER CARS BUILT EACH YEAR SINCE 1899.

| Year. | Freight. | Passenger. | Total. |
|---|---|---|---|
| 1899 | 119,886 | 1,305 | 121,191 |
| 1900 | 115,631 | 1,636 | 117,267 |
| 1901 | 136,950 | 2,055 | 139,005 |
| 1902 | 162,599 | 1,948 | 164,547 |
| 1903 | 153,195 | 2,007 | 155,202 |
| 1904 | 60,806 | 2,144 | 62,950 |
| 1905* | 165,155 | 2,551 | 168,006 |
| 1906* | 240,503 | 3,167 | 243,670 |
| 1907* | 284,188 | 5,457 | 289,645 |
| 1908* | 76,555 | 1,716 | 78,271 |
| 1909* | 93,570 | 2,849 | 96,419 |
| 1910* | 180,945 | 4,412 | 185,357 |
| 1911* | 72,161 | 4,246 | 76,407 |
| 1912† | 152,429 | 3,060 | 155,489 |
| 1913† | 207,684 | 3,296 | 210,195 |

*Includes Canadian output.
†Includes Canadian output and equipment built in railroad shops.

CARS AND LOCOMOTIVES ORDERED DURING PAST 13 YEARS.

| Year. | Locomotives. | Cars—Passenger. | Cars—Freight. | Year. | Locomotives. | Cars—Passenger. | Cars—Freight. |
|---|---|---|---|---|---|---|---|
| 1901 | 4,340 | 2,879 | 193,439 | 1908 | 1,182 | 1,319 | 62,669 |
| 1902 | 4,665 | 3,459 | 195,248 | 1909 | 3,350 | 4,514 | 189,360 |
| 1903 | 3,283 | 2,310 | 108,936 | 1910 | 3,787 | 3,881 | 141,204 |
| 1904 | 2,538 | 2,213 | 136,561 | 1911 | 2,850 | 2,623 | 133,117 |
| 1905 | 6,265 | 3,289 | 341,315 | 1912 | 4,515 | 3,642 | 234,758 |
| 1906 | 5,642 | 3,402 | 310,315 | 1913 | 3,467 | 3,179 | 146,732 |
| 1907 | 3,482 | 1,791 | 151,711 | | | | |

CLASSIFICATION OF FREIGHT CARS ORDERED DURING 1913.

| | All-steel a | Steel frame and steel underframe b c | Steel underframe. b | Composite underframe. d | Wood. f | Not specified. | Total. | Draft Gear. Spring. m | Friction. n | Not specified. |
|---|---|---|---|---|---|---|---|---|---|---|
| Box | 100 | 20,457 | 20,296 | 5,234 | 3,339 | 3,640 | 53,066 | 28,146 | 21,061 | 3,859 |
| Refrigerator | ... | 505 | 4,934 | 1 | 16 | 750 | 6,206 | 16 | 5,433 | 757 |
| Hopper, including Ore | 31,460 | ... | ... | ... | 405 | 151 | 32,016 | 4,315 | 23,282 | 4,419 |
| Gondola, including General Service | 19,919 | ... | 10,229 | 1,240 | 329 | 120 | 31,837 | 8,269 | 19,458 | 4,110 |
| Coal (not otherwise specified) | 1,710 | ... | ... | 40 | 2 | 1,050 | 2,802 | 1,002 | 740 | 1,060 |
| Coke (not otherwise specified) | 1,512 | ... | ... | ... | ... | ... | 1,512 | ... | 1,500 | 12 |
| Stock | ... | 1,225 | 3,535 | 875 | 371 | 150 | 6,156 | 3,031 | 2,465 | 660 |
| Flat, including Logging | 4,168 | ... | ... | ... | 2,646 | 591 | 7,405 | 3,574 | 1,962 | 1,869 |
| Tank | 1,881 | ... | 24 | ... | ... | ... | 1,905 | 1 | 566 | 1,338 |
| Caboose | ... | 20 | 602 | ... | 268 | 27 | 917 | 670 | 128 | 119 |
| Miscellaneous | 1,627 | ... | 346 | 355 | 495 | 87 | 2,910 | 1,993 | 494 | 423 |
| Total | 62,377 | 22,207 | 39,966 | 7,745 | 7,871 | 6,566 | 146,732 | 51,017 | 77,089 | 18,626 |

CLASSIFICATION OF PASSENGER CARS ORDERED IN 1913.

| | All-steel a | Steel underframe b | Composite underframe d | Wood f | Not specified | Total | Method of Lighting: Electric x | Gas y | Electric and gas xy | Oil w | Electric and oil xw | Not specified |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coaches and Smoking, including Comb. Coach and Smoking | 1,472 | 50 | 11 | 105 | 6 | 1,644 | 1,294 | 180 | 80 | 28 | ... | 62 |
| Parlor and Chair | 139 | 2 | ... | 2 | ... | 143 | 107 | 1 | 25 | ... | ... | 10 |
| Dining | 104 | 8 | ... | ... | ... | 112 | 107 | 2 | 3 | ... | ... | ... |
| Comb. Passenger and Baggage | 135 | 4 | ... | 17 | ... | 156 | 130 | 6 | ... | 15 | ... | 5 |
| Comb. Passenger and Mail | 8 | ... | 3 | ... | ... | 11 | 3 | 5 | ... | 3 | ... | ... |
| Baggage | 339 | 65 | 15 | 26 | 3 | 448 | 202 | 152 | 14 | 17 | 20 | *43 |
| Comb. Baggage and Mail | 200 | 34 | ... | 1 | ... | 235 | 134 | 55 | 6 | 4 | 25 | 11 |
| Mail | 185 | ... | ... | 2 | ... | 187 | 124 | 44 | 1 | ... | ... | 18 |
| Other Combination | 18 | ... | ... | 10 | 1 | 29 | 16 | 6 | ... | 6 | ... | 1 |
| Private | 9 | 3 | ... | ... | ... | 12 | 6 | 1 | 3 | ... | ... | 2 |
| Gas-electric | 23 | 1 | ... | ... | 15 | 39 | 19 | 5 | ... | ... | ... | 15 |
| Miscellaneous | 133 | 4 | ... | 14 | 12 | 163 | 107 | 37 | 5 | 1 | ... | 13 |
| Total | 2,765 | 171 | 29 | 177 | 37 | 3,179 | 2,249 | 494 | 137 | 74 | 45 | 180 |

*No light was provided on 27 of these.

cially those of freight cars. The accompanying tables contain detailed statements of the new freight cars, passenger cars and locomotives ordered by the railroads and industrial companies of the United States, Canada and Mexico. Although the compilation of figures from such numerous sources is subject to some slight omissions, the results are sufficiently accurate to meet the general purpose for which these statistics have been prepared, namely to show the character and extent of the purchases of rolling stock in 1913 as compared with previous years.

Nearly all of the data is compiled from official sources. It may be of interest to note that replies were lacking from but three of the railroads owning over 1,000 cars in the United States, Canada and Mexico. In these cases and in the cases of the small roads and private companies our information had to come from the builders, or else from our regular weekly records. The lists which follow refer only to new cars and locomotives *ordered* since January 1, 1913. On the whole, the year cannot be termed a very satisfactory one. The orders placed for freight cars this year are far below those of last year, but are still in excess of those of 1911 and 1910. Nevertheless, although the orders were smaller this year, the class of equipment ordered was exceptionally high-grade. The extensive use of the steel freight car is at once noticeable. By far the larger portion of the cars ordered this year were of all-steel construction. This is especially to be observed in the case of the hopper car and to a less degree in that of the gondola and flat car. The number of all-steel box cars ordered this year is practically negligible. The steel frame and the steel underframe box cars make up almost all of the box cars ordered.

LOCOMOTIVES BUILT FOR EVERY YEAR SINCE 1893.

| Year. | No. Built. | Year. | No. Built. | Year. | No. Built. |
|---|---|---|---|---|---|
| 1893 | 2,011 | 1900 | 3,153 | 1907* | 7,362 |
| 1894 | 695 | 1901 | 3,384 | 1908* | 2,342 |
| 1895 | 1,101 | 1902 | 4,070 | 1909* | 2,887 |
| 1896 | 1,175 | 1903 | 5,152 | 1910* | 4,755 |
| 1897 | 1,251 | 1904 | 3,441 | 1911* | 3,530 |
| 1898 | 1,875 | 1905* | 5,491 | 1912† | 4,915 |
| 1899 | 2,475 | 1906* | 6,952 | 1913† | 5,332 |

*Includes Canadian output.
†Includes Canadian output and equipment built in railroad shops.

It would seem, on the whole, that the orders for passenger cars are rather large in proportion to the orders for freight cars. There may be several reasons for this; the orders for freight cars ran rather large last year and besides there is always to be considered the fact that there exists a public demand for the all-steel passenger car. Here, too, a table shows that almost all the passenger cars ordered this year are of all-steel construction. The new law relating to postal cars has resulted in all but two of these cars being of that construction. The increased popularity of the electric light also is clearly shown. Gas lighting, however, retains a good degree of favor and it is to be noted that many cars have been fitted with both gas and electricity.

CLASSIFICATION OF LOCOMOTIVES ORDERED DURING THE PAST THREE YEARS.

| | 1913 | 1912 | 1911 |
|---|---|---|---|
| Consolidation | 823 | 858 | 577 |
| Mikado | 796 | 1,309 | 590 |
| Switching | 638 | 821 | 443 |
| Pacific | 566 | 594 | 486 |
| Ten-Wheel | 255 | 364 | 238 |
| Mallet | 72 | 168 | 112 |
| Atlantic | 46 | 5 | 9 |
| Mogul | 42 | 61 | 127 |
| Mountain | 24 | .. | 2 |
| American | 8 | 8 | 27 |
| Electric | 94 | 75 | 133 |
| Others | 103 | 252 | 106 |

Returns from the locomotive builders show that 5,332 locomotives were built, which compares with 4,915 for last year. Of these 4,561 were for domestic service and 771 for export. One of the tables shows the number of locomotives built for each year since 1893.

The orders placed for locomotives compare but fairly well with those of 1912. For 1913 the total is 3,467, whereas last year it was 4,515. This figure has been exceeded several times since 1901, as may be seen from the table. A table is also shown which will give an idea of the popularity of the various types of locomotives ordered in the past three years. It is worthy of note that the consolidation type has once more regained the lead for a while at least over the Mikado. The Mallet seems to have taken a slump, whereas the Atlantic type seems to have come into favor again on at least one large road.

## FREIGHT CARS ORDERED IN 1913

| Purchaser. | No. | Kind. | Capacity. | Builder. |
|---|---|---|---|---|
| Abilene & Southern | bm 1 | Box | 60,000 | |
| Algoma Steel Corp. | a 19 | Dump | 100,000 | Hart-Otis |
| | b 19 | Flat | 100,000 | Canadian Car & Fdy. |
| Aliquippa & Southern | a 20 | Dump | 200,000 | Summers Steel |
| | 20 | Hopper | | Standard Steel |
| Am. Agri. Chem. Co. | a 10 | Tank | 100,000 | Amer. Car & Fdy. |
| American Brass Co. | b 1 | Flat | 100,000 | Pressed Steel |
| American Molasses Co. | a 10 | Tank | 100,000 | Amer. Car & Fdy. |
| American Refining Co. | b 20 | Tank | 60,000 | Amer. Car & Fdy. |
| Amer. Refrig. Tr. Co. | bn 2,003 | Refrig. | 60,000 | Amer. Car & Fdy. |
| Am. Sheet & Tin Pl. Co. | b 2 | Flat | 100,000 | Amer. Car & Fdy. |
| Am. Steel & Wire Co. | 125 | Ore | | Western Steel |
| Am. Sugar Ref. Co. | b 6 | Box | 80,000 | Amer. Car & Fdy. |
| G. Amsinck & Co. | b 6 | Flat | 40,000 | Amer. Car & Fdy. |
| | b 6 | Box | 40,000 | Amer. Car & Fdy. |
| Anaconda Cop. Min. Co. | b 32 | Dump | 120,000 | Pullman |
| Ann Arbor | b 2 | Box | 80,000 | Amer. Car & Fdy. |
| Antrium Iron Co. | f 20 | Flat | 60,000 | Cent. Loco. & Car |
| Arizona Eastern | an 3 | Tank | 12,500 g. | Pressed Steel |
| | bm 100 | Box | 100,000 | Amer. Car & Fdy. |
| Ark., Louisiana & Gulf | fm 15 | Box | 60,000 | Mather |
| | fm 5 | Flat | 60,000 | Mather |
| Armour Car Lines | 400 | Refrig. | | Company shops |
| Arms Pal. Horse Car Co. | 12 | | | Company shops |
| Atch., Top. & Santa Fe. | bn 900 | Refrig. | 60,000 | Amer. Car & Fdy. |
| | bn 950 | Auto-Furn. | 80,000 | Amer. Car & Fdy. |
| | bn 900 | Gen. serv. | 100,000 | Amer. Car & Fdy. |
| | an 50 | Dump | 80,000 | Western Wh. Scraper |
| | bn 50 | Caboose | | Company shops |
| Atlanta & West Point | fm 1 | Caboose | | W. Ry. of Ala. shops |
| | fm 6 | Flat | 60,000 | W. Ry. of Ala. shops |
| | fm 1 | Flat | 80,000 | W. Ry. of Ala. shops |
| | bn 10 | Flat | 80,000 | W. Ry. of Ala. shops |
| | fm 1 | Coal | 80,000 | W. Ry. of Ala. shops |
| Atlanta, Birm. & Atlantic. | fm 4 | Caboose | | Ga. Car & Loco. |
| Atlantic Coast Line | 100 | Flat | | Amer. Car & Fdy. |
| | bn 900 | Box | 60,000 | Barney & Smith |
| | bn 100 | Automobile | 60,000 | Barney & Smith |
| | bn 300 | Flat | 80,000 | Barney & Smith |
| | bn 25 | Box | 60,000 | Barney & Smith |
| | bn 50 | Rodger bal. | 100,000 | Amer. Car & Fdy. |
| | bn 25 | Phosphate | 100,000 | Pressed Steel |
| | f 25 | Caboose | | Company shops |
| Baldwin Lbr. Co., Ltd. | b 25 | Logging | 30,000 | Orange Iron Wks. |
| Baltimore & Ohio | an 1,922 | Gondola | 100,000 | Cambria Steel |
| | an 500 | Hopper | 100,000 | Amer. Car & Fdy. |
| | an 500 | Hopper | 100,000 | Standard Steel. |
| Baltimore & Ohio (Cont.) | an 500 | Hopper | 100,000 | Pressed Steel |
| | an 500 | Hopper | 100,000 | Cambria Steel |
| Bangor & Aroostook | bn 68 | Flat | 80,000 | Standard Steel |
| | bn 13 | Box | 60,000 | Standard Steel |
| Bear Creek Mill Co. | f 6 | Logging | 60,000 | Amer. Car & Fdy. |
| Bellgrade Lbr. Co. | f 10 | Flat | 60,000 | Cent. Loco. & Car |
| David Berg Distilling Co. | a 1 | Tank | 60,000 | Amer. Car & Fdy. |
| Berwind White C. M. Co. | a 100 | Hopper | 100,000 | Cambria Steel |
| | a 100 | Hopper | 100,000 | Cambria Steel |
| Bessemer & Lake Erie | a 100 | Box | 100,000 | Summers Steel |
| Bethlehem Steel Co. | b 1 | Flat | 100,000 | Pressed Steel |
| | a 65 | Hopper | 100,000 | Pressed Steel |
| | b 25 | Flat | | Pressed Steel |
| Bingham & Garfield | a 25 | Ore | 100,000 | Pressed Steel |
| Blackwood Coal & Coke Co. | a 10 | Hopper | 100,000 | Pressed Steel |
| Borough Development Co. | f 30 | Gondola | | Mount Vernon |
| Boston & Albany | bm 20 | Caboose | | Company shops |
| | bm 1 | Rail unldr. | | Ramapo Iron Wks. |
| Boston & Maine | bn 500 | Box | 60,000 | Keith Car & Mfg. |
| | an 500 | Gondola | 100,000 | Pressed Steel |
| Brinson | fm 100 | Flat | 60,000 | Ga. Car & Loco. |
| W. Harry Brown | a 4 | Coke | 100,000 | Pressed Steel |
| Buff., Roch. & Pitts. | am 1,000 | Hopper | 100,000 | Cambria Steel |
| Butler County | bm 10 | Flat | 80,000 | Amer. Car & Fdy. |
| | bm 5 | Box | 80,000 | Amer. Car & Fdy. |
| Camacho, Roldan & Van Sickel | b 10 | Stock | 44,000 | Amer. Car & Fdy. |
| Cambria Steel Co. | a 1 | Gondola | 100,000 | Cambria Steel |
| Canadian Copper Co. | a 25 | Otis dump. | 100,000 | Hart-Otis |
| Canadian Northern | fm 75 | Caboose | | Company shops |
| | fm 50 | Caboose | | Mount Vernon |
| | am 75 | Ore | 80,000 | Canadian Car & Fdy. |
| | fm 593 | Box | 60,000 | National Steel |
| | fm 1,300 | Box | 60,000 | Canadian Car & Fdy. |
| | fm 500 | Box | 60,000 | Nova Scotia |
| | fm 300 | Ballast | 60,000 | Hart-Otis |
| | fm 150 | Stock | 60,000 | Crossen |
| | fm 500 | Flat | 60,000 | Crossen |
| | bm 200 | Flat | 80,000 | National Steel |
| | fm 2 | Snow plow. | | Canadian Car & Fdy. |
| Canadian Northern Ont. | fm 15 | Refrig. | 60,000 | Mount Vernon |
| Canadian Pacific | am 6 | Pit | 150,000 | Canadian Car & Fdy. |
| | bcm 1,000 | Box | 80,000 | Canadian Car & Fdy. |
| | fm 7 | Flat | 60,000 | Company shops |
| | bcm 500 | Box | 80,000 | Company shops |
| | dgm 155 | Stock | 60,000 | Company shops |

| Purchaser. | No. | Kind. | Capacity. | Builder. |
|---|---|---|---|---|
| Canadian Pacific (Cont.) | dm 1 | Refrig. ... | 80,000 | Company shops |
| | bm 228 | Caboose .. ..... | | Company shops |
| | a 15 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | f 12 | Rodger bal. | 60,000 | Hart-Otis |
| | bm 100 | Flat ..... | 100,000 | Bettendorf |
| Canadian Steel Foundries, Ltd. ..... | d 4 | Ballast ... | 80,000 | Canadian Car & Fdy. |
| | d 4 | Hart conv. | 80,000 | Hart-Otis |
| Cape Breton Coal, Iron & Ry. ..... | f 30 | Hopper ... | 60,000 | Canadian Car & Fdy. |
| | f 5 | Hopper ... | 30,000 | Canadian Car & Fdy. |
| | a 20 | Hopper ... | 80,000 | Canadian Car & Fdy. |
| Carnegie Steel Co..... | b 40 | Flat ..... | 100,000 | Pressed Steel |
| Carolina, Clinchfield & O. | bn 300 | Stock .... | 60,000 | Pressed Steel |
| Central of Georgia..... | bn 24 | Flat ..... | 80,000 | Company shops |
| Central Pacific..... | bm 400 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bm 150 | Automobile | 80,000 | Standard Steel |
| | am 200 | Gondola .. | 100,000 | Pressed Steel |
| | bm 5 | Caboose .. ..... | | Standard Steel |
| | bm 50 | Stock .... | 80,000 | Pullman |
| Central Ref. Co..... | a 20 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Cent. W. Va. & South'n. | fm 200 | Stock .... | 60,000 | Mather |
| Chanute Refining Co.... | a 30 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 26 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Charleston & W. Caro'a. | fm 5 | Caboose .. ..... | | Company shops |
| Charleston M. & M. Sup. Co. ..... | f 4 | Logging .. | 20,000 | Amer. Car & Fdy. |
| Chesapeake & Ohio..... | an 2,000 | Hopper ... | 140,000 | Standard Steel |
| Chicago & Alton ..... | am 1,000 | Gondola .. | 100,000 | Pressed Steel |
| | bm 200 | Flat ..... | 100,000 | Bettendorf |
| | bm 1,000 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | am 200 | Work ..... | 100,000 | Bettendorf |
| | bm 500 | Stock ..... | 80,000 | Pullman |
| | b 400 | Gondola .. ..... | | Western Steel |
| Chicago & Ill. Midland.. | an 250 | Coal ..... | 100,000 | Amer. Car & Fdy. |
| | an 250 | Coal ..... | 100,000 | Haskell & Barker |
| Chicago & N. Western.. | bn 2,000 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | bn 2,000 | Gondola .. | 100,000 | Western Steel |
| | a 55 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | b 1,500 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| Chic. & Western Indiana. | dm 300 | Gondola .. | 100,000 | Haskell & Barker |
| Chic., Burl. & Quincy... | dm 100 | Box ..... | 80,000 | Company shops |
| | dm 3,000 | Box ..... | 80,000 | Haskell & Barker |
| | dm 2,000 | Box ..... | 80,000 | Haskell & Barker |
| | bcm 250 | Box ..... | 80,000 | Haskell & Barker |
| | bcm 500 | Auto ..... | 80,000 | Haskell & Barker |
| | dm 250 | Ballast ... | 100,000 | Haskell & Barker |
| | bm 500 | Flat ..... | 100,000 | Haskell & Barker |
| | am 2,000 | Gondola .. | 100,000 | Haskell & Barker |
| | am 500 | Gondola .. | 100,000 | Haskell & Barker |
| | dm 620 | Stock ..... | 60,000 | Company shops |
| | dm 100 | Stock ..... | 60,000 | Company shops |
| | an 100 | Tank .... | 12,000 g. | Amer. Car & Fdy. |
| | bm 25 | Way ..... | ..... | Company shops |
| | am 50 | Dump ... | 20 yd. | Kilbourne & Jacobs |
| Chicago Great Western.. | an 2 | Tank .... | 8,000 g. | German-American |
| | n 1 | Tank .... | 8,000 g. | Company shops |
| Chic., Ind. & Louisville.. | an 1,000 | Gondola .. | 100,000 | Haskell & Barker |
| | bn 287 | Flat ..... | 100,000 | Haskell & Barker |
| Chicago Mill & Lbr. Co. | b 100 | Flat ..... | 80,000 | Amer. Car & Fdy. |
| Chic., Mil. & St. Paul... | fn 300 | Ore ..... | 100,000 | Company shops |
| | bn 3,455 | Box ..... | 80,000 | Company shops |
| Chic., Peoria & St. L... | am 400 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | bm 200 | Box ..... | 80,000 | Amer. Car & Fdy. |
| Chic., Rock Island & Pac. | bcm 1,500 | Box ..... | 80,000 | Western Steel |
| | am 500 | Gondola .. | 100,000 | Standard Steel |
| | bm 50 | Caboose .. ..... | | Whipple Car |
| Chicago Short Line..... | a 15 | Gen'l serv. | 100,000 | Western Steel |
| Chic., Terre H'te & S.-E. | an 900 | Hopper ... | 100,000 | Haskell & Barker |
| | bn 13 | Caboose .. | 80,000 | Haskell & Barker |
| Christmas Isl. Phosphate Co. ..... | n 10 | Flat ..... | ..... | Amer. Car & Fdy. |
| Cin., New Or. & Tex. P. | a 50 | Hopper ... | 100,000 | Cambria Steel |
| | a 100 | Gondola .. | 100,000 | Cambria Steel |
| | bm 100 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | bm 100 | Auto. .... | 60,000 | Amer. Car & Fdy. |
| City Ice Del. Co. of Cleve. | f 1 | Ice ..... | 80,000 | Amer. Car & Fdy. |
| Cleve., Cin., C. & St. L. | an 1,000 | Gen. Serv. | 100,000 | Amer. Car & Fdy. |
| Constantine Ref. Co.... | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Copper Range ..... | bn 15 | Box ..... | 100,000 | Company shops |
| Corrigan, McKinney & Co. | a 4 | Gondola .. | 100,000 | Pressed Steel |
| J. S. Cosden & Co..... | a 130 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 70 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Cotton Belt Lbr. Co..... | f 16 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Crystal Oil Works..... | a 1 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Cumberland Valley..... | bn 5 | Flat ..... | 100,000 | Pa. R. R. shops |
| | bcn 11 | Box ..... | 100,000 | Pa. R. R. shops |
| | bn 20 | Gondola .. | 100,000 | Pa. R. R. shops |
| | 20 | Gondola .. ..... | | Pressed Steel |
| Danville & Western..... | bm 40 | Box ..... | 60,000 | Lenoir |
| M. L. Davis..... | f 5 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Del., Lack. & Western.. | bcn 20 | Caboose .. ..... | | Company shops |
| Denver, N. West & Pac. | bn 100 | Box ..... | 80,000 | Amer. Car & Fdy. |
| | bn 25 | Stock ..... | 80,000 | Amer. Car & Fdy. |
| | * 300 | Gen'l serv. ..... | | Western Steel |
| Jacob Dold Packing Co.. | an 50 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Dominion Coal Co., Ltd. | f 25 | Hopper ... | 30,000 | Canadian Car & Fdy |
| Donora Southern ..... | 50 | Coal ..... ..... | | Standard Steel |
| Duluth & Iron Range... | an 200 | Hopper ... | 100,000 | Amer. Car & Fdy. |
| | an 800 | Hopper ... | 100,000 | Summers Steel |
| Duluth & Northeastern.. | fm 30 | Flat ..... | 60,000 | Cent. Loco & Car |
| Duluth & Northern Minn. | fm 10 | Flat ..... | 50,000 | Company shops. |
| Duluth, Missabe & Nor.. | an 1,000 | Ore ..... | 100,000 | Western Steel |
| Duluth, Win. & Pac..... | f 400 | Box ..... ..... | | Mount Vernon |
| Dungannon Lbr. Co..... | f 5 | Logging .. | 20,000 | Amer. Car & Fdy. |
| East Broad Top..... | am 30 | Hopper ... | 60,000 | Pressed Steel |
| E. Jersey R. R. & Term. | an 15 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Eastern Const. Co..... | f 50 | Gondola .. | 60,000 | Cent. Loco. & Car |
| Eastern Refining Co.... | a 10 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Edison Illuminating Co.. | a 10 | Dump .... | 100,000 | Amer. Car & Fdy. |
| Elgin, Joliet & Eastern.. | 20 | Way ..... ..... | | Company shops |
| | a 2 | Tank ..... ..... | | Pressed Steel |
| Elk & Little Kanawha.. | f 20 | Logging .. | 40,000 | Amer. Car & Fdy. |
| El Paso & So. Western. | am 50 | Rodger bal. | 100,000 | Amer. Car & Fdy. |
| | an 200 | Gondola .. | 100,000 | Standard Steel. |
| | bcn 200 | Stock .... | 80,000 | Standard Steel. |
| | bcn 500 | Automobile | 80,000 | Standard Steel. |

| Purchaser. | No. | Kind. | Capacity. | Builder. |
|---|---|---|---|---|
| A. H. Emery..... | bn 1 | Auto. .... | 100,000 | Amer. Car & Fdy. |
| Empire Steel & Iron Co. | 6 | Hopper ... | 100,000 | Cambria Steel |
| Empire Zinc Co..... | an 5 | Ore ..... | 100,000 | Amer. Car & Fdy. |
| Ensign Oil Co..... | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Erie ..... | bcn 1,500 | Box ..... | 80,000 | Standard Steel |
| | bn 1 | Flat ..... | 100,000 | Std. Car Truck |
| | bn 500 | Gondola .. | 100,000 | Standard Steel |
| | an 500 | Hopper ... | 100,000 | Standard Steel |
| | bcn 1,500 | Box ..... | 80,000 | Amer. Car. & Fdy. |
| | an 1,000 | Hopper ... | 100,000 | Pressed Steel |
| | 500 | Box ..... ..... | | Western Steel |
| Evans & Howard F. Br. Co. ..... | a 10 | Coal ..... ..... | | Mount Vernon |
| Fassett Lbr. Co..... | f 10 | Logging .. ..... | | Canadian Car & Fdy. |
| Federal Lt. & Power Co. | a 4 | Gondola .. | 100,000 | Pressed Steel |
| Flynn Lbr. Co..... | f 10 | Logging .. | 50,000 | Amer. Car & Fdy. |
| Ft. Dodge, D. M'es & So. | f 300 | Box ..... | 60,000 | Haskell & Barker |
| Foster Lbr. Co..... | f 20 | Logging .. | 50,000 | Amer. Car & Fdy. |
| Gal., Harrisb'g & San A. | an 100 | Tank ... | 12,500 g. | Pressed Steel |
| | bn 100 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bn 500 | Box ..... | 100,000 | Standard Steel |
| | an 100 | Gondola .. | 100,000 | Pressed Steel |
| | bm 5 | Caboose .. ..... | | Standard Steel |
| | bn 200 | Stock .... | 80,000 | Pullman |
| Gainesville Midland .... | 20 | Box ..... ..... | | ..... |
| Gardner Extract Co..... | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| General Roofing Co..... | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| General Roofing Mfg. Co. | a 1 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Georgia & Florida..... | fm 100 | Flat ..... | 60,000 | Cent. Loco. & Car |
| Georgia, Florida & Ala.. | 2 | Dump .... ..... | | ..... |
| | 20 | Box ..... | 60,000 | ..... |
| Grand Rapids & Ind.... | bn 85 | Flat ..... | 100,000 | Pressed Steel |
| | an 60 | Gondola .. | 100,000 | Cambria Steel |
| | bn 10 | Caboose .. ..... | | Penn. Co. shops |
| Grand Trunk..... | bcm 2,000 | Box ..... | 80,000 | Canadian Car & Fdy. |
| | bcm 2,000 | Box ..... | 80,000 | Eastern Car |
| | bcm 3,000 | Box ..... | 80,000 | Western Steel |
| | an 1,000 | Gondola .. | 100,000 | Pressed Steel |
| | bc 500 | Stock ..... | ..... | National Steel |
| | 500 | Flat ..... ..... | | Pressed Steel |
| Great Northern ..... | 1,000 | Coal ..... ..... | | Amer. Car & Fdy. |
| | a 40 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Great Southern Lbr. Co. | b 50 | Logging .. | 80,000 | Amer. Car & Fdy. |
| Gt. West Oil Ref & Pipe Line Co. ..... | a 10 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Greenville, Spartanburg & A. ..... | 4 | Caboose .. ..... | | Western Steel |
| Guantanamo Sugar Co... | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| J. M. Guffey Pet. Co... | an 175 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Hardaway Con. Co..... | b 24 | Flat ..... | 100,000 | Amer. Car & Fdy. |
| Hassinger Lbr. Co..... | n 6 | Logging .. | 80,000 | Amer. Car & Fdy. |
| | 1 | Caboose .. ..... | | Amer. Car & Fdy. |
| Wm. Henderson ..... | a 10 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Hocking Valley ..... | an 1,000 | Gondola .. | 100,000 | Ralston |
| | bm 816 | Box ..... | 60,000 | Cent. Loco. & Car |
| F. H. Hopkins & Co., Ltd. | f 1 | Flat ..... ..... | | Canadian Car & Fdy. |
| Houston & Texas Central. | an 100 | Tank ... | 12,500 g. | Pressed Steel |
| | bn 100 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bm 10 | Caboose .. ..... | | Standard Steel |
| | bn 200 | Stock .... | 80,000 | Pullman |
| Houston, E. & W. Texas. | bn 200 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bm 5 | Caboose .. ..... | | Standard Steel |
| Illinois Central ..... | an 500 | Gondola .. | 100,000 | Pullman |
| | am 500 | Gondola .. | 100,000 | Pullman |
| | bn 100 | Fruit .... | 80,000 | Amer. Car & Fdy. |
| | bn 900 | Fruit ..... | 80,000 | Amer. Car & Fdy. |
| | bn 500 | Stock .... | 80,000 | Amer. Car & Fdy. |
| | bn 500 | Furniture.. | 80,000 | Amer. Car & Fdy. |
| | bn 500 | Refrig. ... | 80,000 | Amer. Car & Fdy. |
| | bn 300 | Furniture.. | 80,000 | Amer. Car & Fdy. |
| Intercolonial ..... | bcm 500 | Box ..... | 60,000 | Nova Scotia |
| | bcm 250 | Box ..... | 60,000 | Can. Car & Fdy. Co |
| | fm 10 | Caboose .. ..... | | Company shops |
| | fm 20 | Box Bag.. | 80,000 | Company shops |
| | fm 50 | Box ..... | 60,000 | Company shops |
| | 20 | Caboose .. ..... | | Nova Scotia |
| | bc 200 | Box ..... | 80,000 | Nova Scotia |
| International & Gt. Nor. | bn 400 | Stock .... | 60,000 | Amer. Car & Fdy. |
| | an 200 | Coal ..... | 80,000 | Amer. Car & Fdy. |
| | bn 200 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | bn 200 | Vent. .... | 60,000 | Amer. Car & Fdy. |
| Interstate ..... | an 300 | Hopper ... | 100,000 | Pressed Steel |
| | an 200 | Gondola .. | 100,000 | Pressed Steel |
| | b 2 | Box ..... ..... | | Western Steel |
| Inter-Urban ..... | dn 40 | Coal ..... | 80,000 | McGuire Cummings |
| | dn 25 | Box ..... | 80,000 | McGuire Cummings |
| Executive Council of Iowa | bn 1 | Fish ..... ..... | | Amer. Car & Fdy. |
| Kanotex Refining Co.... | a 3 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 8 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Kansas City Ref. Co.... | a 20 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 12 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Kansas City Term..... | bm 26 | Dump .... | 60,000 | Western Wh. Scraper |
| Keith Car Co..... | a 75 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 48 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Kelly's Creek Col'y Co.. | f 1 | Frt. & pass. ..... | | Amer. Car & Fdy. |
| Kendall Refining Co.... | a 5 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Kennedy Mfg. & Eng. Co. | b 1 | Flat ..... | 80,000 | Amer. Car & Fdy. |
| Kentwood & Eastern.... | fm 15 | Logging ... | 30,000 | Kilby Loco. & Mach. |
| Kettle Valley ..... | f 20 | Flat ..... | 60,000 | Cent. Loco. & Car |
| | f 1 | Rodger bal. | 60,000 | Hart-Otis |
| Kewaunee, G'n Bay & W. | dm 100 | Box ..... | 80,000 | Haskell & Barker |
| Kirby Lbr. Co..... | f 15 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Laclede Gas Light Co.... | a 1 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Lansing Co. ..... | f 10 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Lautz Bros. & Co..... | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Lehigh & New England. | am 500 | Hopper ... | 100,000 | Pressed Steel |
| | am 200 | Gondola .. | 80,000 | Cambria Steel |
| Lehigh Valley..... | bm 1,000 | Box ..... | 80,000 | Pullman |
| | am 1,000 | Coal ..... | 100,000 | Standard Steel |
| | am 50 | Flat ..... | 100,000 | Company shops |
| | am 25 | Flat ..... | 80,000 | Company shops |

a Indicates all-steel cars.
b Indicates steel underframe cars.
c Indicates steel frame cars.
d Indicates composite underframe cars.
f Indicates all-wood cars.
g Indicates steel end cars.
m Indicates spring draft gear.
n Indicates friction draft gear.

| Purchaser. | No. | Kind. | | Builder. |
|---|---|---|---|---|
| Lehigh Valley (Cont.).. | am 10 | Flat (well) | 220,000 | Company shops |
| | bm 88 | Dump .... ..... | | W. J. Oliver |
| | am 1 | Scale test.. ..... | | Company shops |
| | am 1 | Wreck. cr.. | 250,000 | Industrial Works |
| | bm 40 | Caboose .. ..... | | Company shops |
| | b 60 | Caboose .. ..... | | Amer. Car & Fdy. |
| | a 1,000 | Hopper ... | 100,000 | Standard Steel |
| Linde Air Prod. Co..... | bm 4 | Furniture.. | 80,000 | Pullman |
| Live Oak, Perry & Gulf. | b 100 | Flat ..... | 60,000 | Amer. Car & Fdy. |
| | am 75 | Flat ..... | 60,000 | Magor |
| Live Poultry Trans. Co. | bn 50 | Poultry ... | 40,000 | Amer. Car & Fdy. |
| Louisiana & Arkansas... | am 140 | Flat ..... | 80,000 | Amer. Car & Fdy. |
| | bm 40 | Gen'l serv. | 100,000 | Amer. Car & Fdy. |
| | b 10 | Flat ..... ..... | | Mount Vernon |
| Louisiana & Northwest.. | b 1 | Flat ..... ..... | | Pressed Steel |
| La. Cent. Lbr. Co..... | f 50 | Logging .. | 60,000 | Amer. Car & Fdy. |
| Louisiana Ry. & Nav. Co. | b 25 | Flat ..... | 60,000 | Amer. Car & Fdy. |
| | b 125 | Gondola .. | 80,000 | Amer. Car & Fdy. |
| | b 50 | Box ..... | 80,000 | Amer. Car & Fdy. |
| Louisville & Nashville... | 600 | Gondola .. | 100,000 | Company shops |
| | 500 | Box ..... | 80,000 | Company shops |
| | 150 | Stock ..... | 80,000 | Company shops |
| | 100 | Flat ..... | 80,000 | Company shops |
| | 100 | Auto. ..... | 80,000 | Company shops |
| | 600 | Box ..... | 80,000 | Company shops |
| | 200 | Box ..... | 80,000 | Company shops |
| | 100 | Refrig. ... | 80,000 | Company shops |
| | 200 | Flat ..... | 100,000 | Company shops |
| | a 2,500 | Hopper .. | 100,000 | Pressed Steel |
| | a 500 | Gondola .. ..... | | Mount Vernon |
| Magnolia Petroleum Co.. | a 50 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Maine Central..... | bn 10 | Caboose .. ..... | | Amer. Car & Fdy. |
| Mankin & Crouch..... | f 4 | Logging .. | 20,000 | Amer. Car & Fdy. |
| Marden, Orth & Hastings Co. ..... | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Maryland & Penn..... | bm 25 | Box ..... | 80,000 | Balto. Car & Fdy. |
| J. D. McArthur Co..... | d 100 | Hart conv. | 80,000 | Hart-Otis |
| | f 1 | Rodger bal. | 60,000 | Hart-Otis |
| W. J. McCahan Sugar Ref. Co. ..... | a 6 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| McKenzie, Mann & Co., Ltd. ..... | a 75 | Hopper ... | 80,000 | Canadian Car & Fdy. |
| Memphis, Dallas & Gulf. | f 20 | Flat ..... | 60,000 | ..... |
| | f 20 | Box ..... | 60,000 | ..... |
| Mendoza & Laroza..... | b 4 | Flat ..... | 55,000 | Amer. Car & Fdy. |
| Mengel Box Co..... | f 15 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Merrimac Chemical Co.. | b 1 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Mexican ..... | f 12 | Box ..... ..... | | Mount Vernon |
| | a 5 | Tank ..... ..... | | Pressed Steel |
| Midland Valley ..... | a 20 | Gondola .. ..... | | Mount Vernon |
| Milliken Refining Co.... | a 203 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Mill Power Supply Co.. | b 4 | Caboose .. ..... | | Western Steel |
| Mil. Ref. Tran. & Car Co. | b 1 | Refrig. ... | 60,000 | Company shops |
| | f 1 | Refrig. ... | 60,000 | Company shops |
| Mineral Range ..... | an 100 | Rock ..... | 100,000 | Amer. Car & Fdy. |
| Minneapolis & Northern. | 1 | Gas-elec. .. ..... | | McKeen Motor |
| Minneapolis & St. L.... | 500 | Box ..... ..... | | Haskell & Barker |
| Minn., St. P. & S. Ste. M. | bcn 550 | Box ..... | 80,000 | Amer. Car & Fdy. |
| | an 500 | Ore ..... | 100,000 | Amer. Car & Fdy. |
| Minnesota Steel Co..... | b 10 | Flat ..... | 100,000 | Amer. Car & Fdy. |
| Mo., Kansas & Texas... | bgn 260 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | bgn 1,000 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | bgn 230 | Box ..... | 60,000 | Amer. Car & Fdy. |
| Mobile & Ohio..... | am 522 | Gondola .. | 100,000 | Pressed Steel |
| | bm 25 | Caboose .. ..... | | Lenoir |
| Mond Nickel Co..... | a 12 | Otis dump. | 100,000 | Hart-Otis |
| Monongahela Connecting. | a 9 | Hopper ... | 200,000 | Company shops |
| Montana, Wyo. & So... | fm 15 | Box ..... | 80,000 | Mount Vernon |
| | bm 25 | Gondola .. | 100,000 | Mount Vernon |
| Morgan's La. & Texas... | an 100 | Gondola .. | 100,000 | Pressed Steel |
| | bm 4 | Caboose .. ..... | | Standard Steel |
| Mutual Oil Co..... | a 25 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Nash., Chatt. & St. L... | bn 200 | Box ..... | 80,000 | Amer. Car & Fdy. |
| | bn 100 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | bn 50 | Stock .... | 80,000 | Amer. Car & Fdy. |
| Nat. Rys. of Mexico.... | a 5 | Tank ..... ..... | | Pressed Steel |
| Nevada Copper Belt.... | am 20 | Gondola .. | 100,000 | Pressed Steel |
| Nevada Northern ..... | an 2 | Tank .... | 7,500 g. | German-American |
| Newburgh & So. Shore.. | an 125 | Hopper ... | 100,000 | Western Steel |
| | an 50 | Gen'l serv. | 100,000 | Ralston |
| N. E. Coal & Coke Co.. | a 250 | Hopper ... ..... | | Haskell & Barker |
| New Haven Gas Lgt. Co. | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| New Jersey Zinc Co.... | a 12 | Gen'l serv. | 100,000 | Pressed Steel |
| N. O., Natalbany & Nat. | fm 20 | Gondola .. | 80,000 | Fitzhugh Luther |
| | am 10 | Flat ..... | 80,000 | Kilby Loco. & Mach. |
| N. Y., Chic. & St. Louis. | fm 10 | Caboose .. ..... | | Company shops |
| N. Y., Phil. & Norfolk.. | bn 850 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bn 50 | Gondola .. | 100,000 | Ralston |
| | bn 36 | Box ..... | 100,000 | Amer. Car & Fdy. |
| N. Y., Susquehanna & W. | bcn 500 | Box ..... | 80,000 | Western Steel |
| Nona Mills Co..... | f 15 | Logging | 50,000 | Amer. Car & Fdy. |
| Norfolk & Western..... | bcn 500 | Box ..... | 80,000 | Mount Vernon |
| | bcn 500 | Stock ..... | 80,000 | Ralston |
| | bn 250 | Flat ..... | 100,000 | Amer. Car & Fdy. |
| | an 1,000 | Hopper ... | 115,000 | Pressed Steel |
| | an 1,000 | Hopper ... | 115,000 | Amer. Car & Fdy. |
| | an 1,000 | Hopper ... | 115,000 | Company shops |
| | an 1,000 | Hopper ... | 115,000 | Company shops |
| | an 700 | Gondola .. | 180,000 | Company shops |
| | an 50 | Gondola .. | 180,000 | Company shops |
| | an 1,000 | Hopper ... | 115,000 | Company shops |
| Norfolk Southern ..... | bn 300 | Box ..... | 60,000 | Mount Vernon |
| | bn 160 | Flat ..... | 80,000 | Amer. Car & Fdy. |
| Northern Central..... | bn 4 | Caboose .. ..... | | Pa. R. R. shops |
| Northern Pacific..... | fm 1,000 | Flat ..... | 70,000 | Company shops |
| Northwestern Iron Co.. | a 8 | Coke ..... | 100,000 | Pressed Steel |
| Northwestern Pacific.... | a 5 | Dump .... | 100,000 | Kilbourne & Jacobs |
| Ocean Shore ..... | bm 15 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | bm 5 | Box ..... | 80,000 | Amer. Car & Fdy. |
| | am 20 | Gondola .. | 80,000 | Amer. Car & Fdy. |
| Ohio & Col. Smelt. & Ref. Co. ..... | a 4 | Gen'l serv. | 100,000 | Pressed Steel |
| Ohio Electric..... | d 6 | Frt. trailer ..... | | Cincinnati Car |
| | d 3 | Motor frt. ..... | | Cincinnati Car |
| Ohio River & Western.. | fm 20 | Box ..... | 60,000 | P. F. W. & C. shops |
| | fm 20 | Gondola .. | 60,000 | P. F. W. & C. shops |
| Ontonagon ..... | 11 | Russell ... | 30,000 | Company shops |

| Purchaser. | No. | Kind. | | Builder. |
|---|---|---|---|---|
| Oregon & California.... | bm 100 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | am 100 | Gondola .. | 100,000 | Pressed Steel |
| Oregon Electric..... | fm 4 | Caboose .. ..... | | No. Pac. shops |
| | fm 2 | Flat ..... | 60,000 | Spok. P't & Stl. shops |
| Oregon Short Line..... | bm 600 | Box ..... | 100,000 | Pullman |
| | bm 150 | Stock .... | 80,000 | Pullman |
| | am 250 | Gondola .. | 100,000 | Pressed Steel |
| | am 200 | Hopper .. | 100,000 | Pressed Steel |
| | fm 30 | Caboose .. ..... | | Standard |
| Ore.-Wash. R. R. & Nav. | bm 1,000 | Box ..... | 100,000 | Pullman |
| | bm 150 | Stock .... | 80,000 | Pullman |
| | fm 10 | Caboose .. ..... | | Standard Steel |
| Ouachita & Northw'ern.. | b 10 | Logging .. | 50,000 | Amer. Car & Fdy. |
| Pacific Electric ..... | am 100 | Dump .... | 100,000 | Pressed Steel |
| | bm 90 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | am 10 | Gondola .. | 100,000 | Pressed Steel |
| | bm 10 | Stock .... | 80,000 | Pullman |
| | bm 60 | Flat ..... | 100,000 | Bettendorf |
| Pacific Great Eastern... | a 4 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| | bc 44 | Box ..... ..... | | National Steel |
| | b 67 | Flat ..... ..... | | National Steel |
| Paper Makers Chem. Co. | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Paris & Mt. Pleasant... | f 1 | Caboose .. ..... | | Amer. Car & Fdy. |
| Peninsular ..... | bm 34 | Logging .. | 80,000 | Seattle Car & Fdy. |
| | fm 1 | Tank ..... | 6,000 g. | Seattle Car & Fdy. |
| Pennsylvania ..... | bn 500 | Refrig. ... | 90,000 | Company shops |
| | bn 1,000 | Refrig. ... | 90,000 | Amer. Car & Fdy. |
| | an 200 | Flat ..... | 100,000 | Company shops |
| | an 25 | Flat ..... | 150,000 | Company shops |
| | an 94 | Gun ..... | 150,000 | Company shops |
| | an 1,500 | Gondola .. | 105,000 | Pressed Steel |
| | bn 500 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | bn 664 | Gondola .. | 100,000 | Standard Steel |
| | an 537 | Hopper ... | 105,000 | Pressed Steel |
| | an 4,000 | Hopper ... | 105,000 | Cambria Steel |
| | bn 17 | Caboose .. ..... | | Company shops |
| Penna. Lines West..... | an 1,500 | Hopper ... | 110,000 | Standard Steel |
| | bcn 600 | Box ..... | 100,000 | Standard Steel |
| | bcn 1,500 | Box ..... | 100,000 | Western Steel |
| | an 1,000 | Coke ..... | 110,000 | Pressed Steel |
| | ben 5 | Refrig. ... | 90,000 | Company shops |
| | an 10 | Flat gun.. | 150,000 | Company shops |
| | bn 500 | Gondola .. | 100,000 | Ralston |
| | bcn 500 | Refrig .... | 90,000 | Amer. Car & Fdy. |
| | bcn 600 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bn 500 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | an 1,500 | Hopper ... | 110,000 | Cambria Steel |
| | an 1 | Wreck. cr. | 240,000 | Industrial Works |
| | an 1 | Wreck. cr. | 240,000 | Shaw Elec. Crane |
| Penna. Oil Products Ref. Co. ..... | a 20 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Phelps, Dodge & Co..... | a 1 | Tank ..... | 50,000 | Amer. Car & Fdy. |
| Phila. & Reading..... | bm 10 | Caboose .. ..... | | Company shops |
| | bm 4 | Caboose .. ..... | | Company shops |
| | am 1 | Wreck. cr. | 240,000 | Industrial Works |
| | an 5 | Well ..... | 135,000 | Company shops |
| | an 1 | Air brake instruction ..... | | Company shops |
| Phila., Balt. & Wash.... | bn 2 | Caboose .. ..... | | Pa. R. R. shops |
| W. R. Pickering Lbr. Co. | f 40 | Logging .. | 50,000 | Amer. Car & Fdy. |
| Piedmont & Northern... | b 17 | Ballast ... | 100,000 | Amer. Car & Fdy. |
| Pierce Fordyce Oil Assn. | a 100 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Pitts. & Lake Erie..... | a 500 | Coke ..... | 100,000 | Pressed Steel |
| | an 500 | Coke ..... | 80,000 | Pressed Steel |
| Pittsburgh & Shawmut... | an 500 | Hopper ... | 100,000 | Amer. Car & Fdy. |
| Pittsb. Crucible Steel Co. | b 12 | Flat ..... | 200,000 | Pressed Steel |
| Pitts., Shawmut & No... | bm 8 | Caboose .. ..... | | Russell Snow Plow |
| Pittsburgh Steel Co..... | a 15 | Gondola .. | 150,000 | Pressed Steel |
| Poinsett Lbr. Co..... | f 10 | Logging .. | 60,000 | Amer. Car & Fdy. |
| Poitevent & Favre Lbr. Co. ..... | f 70 | Logging .. | 60,000 | Amer. Car & Fdy. |
| Polar Wave Ice & Fuel Co. ..... | fn 6 | Ice ..... | 80,000 | Amer. Car & Fdy. |
| Port., Eugene & East... | bm 50 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | am 20 | Gondola .. | 100,000 | Pressed Steel |
| | bm 40 | Flat ..... | 100,000 | Bettendorf |
| Puget Sound Elec..... | am 10 | Gondola .. | 80,000 | Seattle Car & Fdy. |
| Quebec Central..... | fm 150 | Wood rack | 60,000 | Chic. Ref. Dis. Co. |
| Ry. Storage Battery Co. | a 2 | Stor. batt.. | ..... | Amer. Car & Fdy. |
| Richmond Cedar Works. | f 10 | Flat ..... | 60,000 | Cent. Loco. & Car |
| Riverside Oil Co..... | a 10 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Riverside West'n Oil Co. | a 10 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Rockcastle Lbr. Co..... | f 20 | Logging .. | 20,000 | Amer. Car & Fdy. |
| Rosman Tanning Ext. Co. | a 7 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Rutland ..... | bn 25 | Refrig. ... | 80,000 | Mer. Des. Tran. shops |
| W. F. Ryder Lbr. Co.. | b 15 | Logging .. | 60,000 | Orange Iron Wks. |
| St. Lawrence Bridge Co. | b 4 | Flat ..... | 80,000 | Canadian Car & Fdy. |
| | b 4 | Flat ..... | 80,000 | Canadian Car & Fdy. |
| St. Louis So. West..... | bn 200 | Gen'l serv. | 100,000 | Amer. Car & Fdy. |
| | bn 205 | Gen'l serv. | 100,000 | Amer. Car & Fdy. |
| | fm 1 | Comb. coach & caboose ..... | | Company shops |
| St. L. & Belleville Elec. | fn 20 | Hopper ... | 80,000 | Amer. Car & Fdy. |
| San Diego & So. Eastern. | fm 29 | Flat ..... | 60,000 | Company shops |
| F. Schenk & Sons Co... | b 5 | Refrig. ... | 60,000 | Amer. Car & Fdy. |
| Seaboard Air Line..... | an 250 | Hopper ... | 100,000 | Standard Steel |
| | bcn 500 | Vent. .... | 60,000 | Pressed Steel |
| | bn 250 | Flat ..... | 80,000 | Amer. Car & Fdy. |
| Simmons & Prichard.... | f 2 | Logging .. | 50,000 | Amer. Car & Fdy. |
| C. U. Snyder & Co..... | a 79 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| South Buffalo ..... | a 30 | Dump .... | 100,000 | Summers Steel |
| Southern ..... | am 800 | Gondola .. | 100,000 | Amer. Car & Fdy. |
| | am 500 | Hopper ... | 100,000 | Amer. Car & Fdy. |
| | am 420 | Gondola .. | 100,000 | Mount Vernon |
| | bm 150 | Stock .... | 60,000 | Lenoir |
| | am 52 | Gondola .. | 100,000 | Lenoir |
| | a 345 | Hopper ... | 100,000 | Pressed Steel |
| Southern Pacific..... | bm 100 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bm 500 | Box ..... | 100,000 | Standard Steel |
| | bm 250 | Automobile | 80,000 | Standard Steel |
| | am 300 | Gondola .. | 100,000 | Pressed Steel |
| | bm 10 | Caboose .. ..... | | Standard Steel |
| | bm 100 | Stock .... | 80,000 | Pullman |
| | bm 100 | Flat ..... | 100,000 | Bettendorf |
| Southern Pacific of Mex. | bm 50 | Box ..... | 100,000 | Amer. Car & Fdy. |
| | bn 40 | Stock ..... | 80,000 | Pullman |
| Southern Ry. & Nav.... | fm 100 | Flat ..... | 60,000 | Company shops |

| Purchaser. | No. | Kind. | | Builder. |
|---|---|---|---|---|
| Southern Traction ..... | f 75 | Gondola .. | 80,000 | Cent. Loco. & Car |
| | b 25 | Box ..... | 60,000 | Cent. Loco. & Car |
| | f 134 | Gondola .. | 60,000 | Cent. Loco. & Car |
| Alden Speare's Sons Co. | a 1 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Standard Car Truck Co. | b 2 | Flat ..... | 100,000 | Milwaukee Refrig. |
| Standard Oil Co. of Ind. | b 25 | Rack ..... | 60,000 | Amer. Car & Fdy. |
| Stout Lumber Co..... | f 15 | Logging .. | 40,000 | Amer. Car & Fdy. |
| Sun Co. ..... | an 15 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Superior Const. Co..... | f 1 | Rodger bal. | 60,000 | Hart-Otis |
| Surry Lbr. Co..... | f 28 | Box ..... | ..... | Mount Vernon |
| Swift Ref. Trans. Co... | 250 | Refrig. ... | ..... | Company shops |
| Sydney & Louisburg.... | fm 25 | Hopper ... | 30,000 | Canadian Car & Fdy. |
| Tacoma Eastern ..... | fn 222 | Flat ..... | 80,000 | C. M. & St. P. shops |
| Taylor, Lowenstein & Co. | a 18 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Texas & New Orleans... | 100 | Gondola .. | 100,000 | Pressed Steel |
| | bm 6 | Caboose .. | ..... | Standard Steel |
| | an 100 | Work .... | 100,000 | Bettendorf |
| | bm 200 | Stock .... | 80,000 | Pullman |
| Texas Long Leaf Lbr. Co. | f 12 | Logging .. | 60,000 | Amer. Car & Fdy. |
| Texas, Okla. & Eastern.. | fm 6 | Flat ..... | 60,000 | Amer. Car & Fdy. |
| | fm 18 | Box ..... | 60,000 | Amer. Car & Fdy. |
| | b 40 | ..... | ..... | Amer. Car & Fdy. |
| Thompson Bros. Lbr. Co. | f 18 | Logging .. | 50,000 | Amer. Car & Fdy. |
| Tidewater & Western... | fm 6 | Flat ..... | 40,000 | Company shops |
| | fm 1 | Stock .... | 30,000 | Company shops |
| Toledo & Ohio Cent.... | 1,000 | Gen'l serv. | ..... | Ralston |
| | an 1,000 | Gen'l serv. | 100,000 | Ralston |
| Toledo, Peoria & W.... | bm 25 | Stock .... | 60,000 | Pullman |
| | 2 | Caboose .. | ..... | Vandalia R. R. shops |
| Toledo, St. L. & W..... | 1,000 | Box ..... | 80,000 | Haskell & Barker |
| Tonopah & Tidewater... | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Toronto, Ham. & Buff.. | f 1 | Rodger bal. | 60,000 | Hart-Otis |
| Tremont & Gulf..... | am 65 | Logging .. | 80,000 | Bettendorf |
| | f 1 | Caboose .. | ..... | Amer. Car & Fdy. |
| Trinity & Brazos Val... | f 12 | Box ..... | 60,000 | Pullman |
| Ulster & Delaware..... | 50 | Box ..... | ..... | ..... |
| | 75 | Flat ..... | ..... | ..... |
| Union ..... | an 296 | Gondola .. | 100,000 | Pressed Steel |
| Union Carbide Co..... | a 4 | Hopper ... | 100,000 | Pressed Steel |
| Union Oil Co. of Cal... | a 18 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Union Oil Co. of Pa... | an 4 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Union Pacific..... | am 700 | Work .... | 100,000 | Bettendorf |
| | bm 1,500 | Box ..... | 100,000 | Pullman |
| | bm 450 | Stock .... | 80,000 | Pullman |
| | am 100 | Gondola .. | 100,000 | Pressed Steel |
| | bm 400 | Automobile | 80,000 | Standard Steel |
| | fm 25 | Caboose .. | ..... | Standard Steel |
| | b 200 | Flat ..... | 100,000 | Bettendorf |
| U. S. Government..... | a 3 | Gondola .. | ..... | Mount Vernon |
| | b 2 | Flat ..... | ..... | Mount Vernon |
| U. S. Government (Cont.) | f 1 | Box ..... | ..... | Mount Vernon |
| | f 60 | Flat ..... | 60,000 | Cent. Loco. & Car |
| U. S. Steel Products Co. | b 8 | Flat ..... | 100,000 | Pressed Steel |
| Vandalia ..... | bcn 200 | Box ..... | 100,000 | Western Steel |
| | bcn 25 | Stock .... | 100,000 | Pa. R. R. shops |
| | fm 15 | Caboose .. | ..... | Company shops |
| Vansant Kitchen & Co.. | f 6 | Logging .. | 20,000 | Amer. Car & Fdy. |
| Vera Chem. Co..... | a 1 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 2 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Verde Tunnel & Smelter. | am 40 | Ore ..... | 100,000 | Pressed Steel |
| Virginia & So. Western. | am 345 | Hopper ... | 100,000 | Pressed Steel |
| | am 100 | Hopper ... | 100,000 | Lenoir |
| Virginia Tank Car Corp. | a 25 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| Wabash Chester & W... | fm 2 | Dump .... | 60,000 | Mount Vernon |
| Walters Pierce Oil Co... | a 50 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Wash., Idaho & Montana. | bn 30 | Box ..... | 80,000 | C. M. & St. P. shops |
| Waterloo, Cedar F'ls & N. | dm 40 | Gondola .. | 100,000 | Haskell & Barker |
| | fm 50 | Box ..... | 80,000 | Haskell & Barker |
| | fm 20 | Stock .... | 60,000 | Haskell & Barker |
| Waverly Oil Wks..... | a 2 | Tank ..... | 4,500 g. | Amer. Car & Fdy. |
| Werner Zuinlan Asphalt Co. ..... | a 10 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| Western N. Y. & Penn.. | bn 141 | Gondola .. | 100,000 | Standard Steel |
| | bn 2 | Caboose .. | ..... | Pa. R. R. shops |
| Western Railway of Ala. | bm 14 | Box ..... | 60,000 | Company shops |
| | fm 5 | Flat ..... | 60,000 | Company shops |
| | fm 3 | Flat ..... | 80,000 | Company shops |
| | bn 10 | Flat ..... | 80,000 | Company shops |
| | bm 10 | Automobile | 80,000 | Company shops |
| | bn 25 | Stock .... | 60,000 | Company shops |
| | fm 1 | Coal ..... | 80,000 | Company shops |
| West Va. Pulp & Paper Co. ..... | a 1 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Wheeling & Lake Erie.. | am 1,000 | Hopper ... | 100,000 | Standard Steel |
| | am 500 | Hopper ... | 110,000 | Amer. Car & Fdy. |
| Will & Baumer Co..... | a 2 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| E. M. Wilhoit & L. L. Marcell ..... | a 10 | Tank ..... | 80,000 | Amer. Car & Fdy. |
| | a 4 | Tank ..... | 60,000 | Amer. Car & Fdy. |
| | a 13 | Tank ..... | 100,000 | Amer. Car & Fdy. |
| Windsor, Essex & Lake Shore ..... | be 2 | Box ..... | 80,000 | Canadian Car & Fdy. |
| | b 4 | Flat ..... | 80,000 | Canadian Car & Fdy. |
| Yosemite Valley ..... | bm 40 | Logging .. | 60,000 | Seattle Car & Fdy. |

a Indicates all-steel cars.
b Indicates steel underframe cars.
c Indicates steel frame cars.
d Indicates composite underframe cars.
f Indicates all-wood cars.
g Indicates steel end cars.
m Indicates spring draft gear.
n Indicates friction draft gear.

## PASSENGER CARS ORDERED IN 1913

| Purchaser. | No. | Kind. | Builder. |
|---|---|---|---|
| Algoma Cent. & H. Bay.. | fy 1 | Baggage & express.. | Canadian Car & Fdy. |
| Alabama & Vicksburg... | ax 2 | Mail ..... | Amer. Car & Fdy. |
| Arizona Eastern ..... | ax 1 | Baggage ..... | Pullman |
| | ax 2 | Baggage & mail..... | Pullman |
| | aw 1 | Baggage ..... | Pullman |
| | ax 6 | Coaches ..... | Pullman |
| Arms Pal. Horse Car Co. | b 5 | Horse ..... | Barney & Smith |
| | b 2 | Horse ..... | Barney & Smith |
| Atch., Top. & Santa Fe. | ax 15 | Dining ..... | Pullman |
| | ax 10 | Combination ..... | Pullman |
| | ax 10 | Parlor ..... | Pullman |
| | ax 30 | Smoking ..... | Pullman |
| | ax 6 | Jim Crow ..... | Pullman |
| | ax 10 | Baggage ..... | Pullman |
| | ax 65 | Coaches ..... | Pullman |
| | ax 10 | Smoking ..... | Pullman |
| | bx 2 | Parlor ..... | Pullman |
| | ax 35 | Coaches ..... | Pullman |
| | ax 25 | Chair ..... | Pullman |
| Atlanta, Birm. & Atlantic | ax 2 | Baggage & mail..... | Har. & Hollingsworth |
| Atlantic Coast Line..... | ax 4 | Pass. & baggage.... | Pullman |
| | ay 4 | Mail & express..... | Pullman |
| | ax 12 | Coaches ..... | Pullman |
| | ax 9 | Dining ..... | Pullman |
| | b 2 | Coaches ..... | Amer. Car & Fdy. |
| | b 2 | Pass. & baggage.... | Amer. Car & Fdy. |
| | b 3 | Mail & express..... | Amer. Car & Fdy. |
| Baltimore & Ohio..... | ay 8 | Mail ..... | Pullman |
| | ay 7 | Mail ..... | Amer. Car & Fdy. |
| | ay 5 | Baggage & mail.... | Pullman |
| | ax 7 | Pass. & baggage.... | Pullman |
| | ax 25 | Coaches ..... | Pullman |
| | ax 15 | Smoking ..... | Pullman |
| | ax 4 | Dining ..... | Pullman |
| | ay 40 | Baggage ..... | Amer. Car & Fdy. |
| Bessemer & Lake Erie.. | 1 | Gas-electric ..... | McKeen Motor |
| Boston & Albany..... | ax 20 | Coaches ..... | Amer. Car & Fdy. |
| | ax 4 | Mail ..... | Pressed Steel |
| | ax 4 | Pass. & baggage.... | Standard Steel |
| | ax 2 | Dining ..... | Pullman |
| Boston & Maine..... | az 2 | Mail ..... | Barney & Smith |
| | ax 8 | Mail ..... | Barney & Smith |
| Boston Elevated ..... | ax 25 | Elevated ..... | Amer. Car & Fdy. |
| | ax 30 | Elevated ..... | Pressed Steel |
| Bos., Rev. Beach & Lynn | fw 4 | Coaches ..... | Laconia |
| Buff., Roch. & Pitts.... | ax 2 | Cafe-observation .... | Pullman |
| | ax 10 | Coaches ..... | Pullman |
| | ax 3 | Pass. & mail..... | Pullman |
| | ax 7 | Baggage & pass.... | Pullman |
| | ax 2 | Baggage & mail.... | Pullman |
| | ax 3 | Baggage ..... | Pullman |
| Canadian Northern Ont. | fy 5 | 1st Class ..... | Hotchkiss Blue |
| | fy 3 | Combination ..... | Hotchkiss Blue |
| | fw 1 | Store ..... | Hotchkiss Blue |
| | fw 3 | Express ..... | Hotchkiss Blue |
| Canadian Northern ..... | fy 25 | 1st Class ..... | Can. Car & Fdy. |
| | fy 25 | 2nd Class ..... | Crossen |
| | fw 11 | Pass. & baggage..... | Preston Car & Coach |
| | fw 10 | Baggage ..... | Can. Car & Fdy. |
| | fx 6 | Sleeping ..... | Barney & Smith |
| Canadian Pacific..... | fy 3 | 1st Class ..... | Amer. Car & Fdy. |
| | fy 1 | 2nd Class ..... | Amer. Car & Fdy. |
| | fy 1 | Baggage ..... | Amer. Car & Fdy. |
| Canadian Pacific (Cont.) | fx 2 | Buffet parlor ..... | Company shops |
| | a 25 | Pass. & smoking.... | Company shops |
| | ay 30 | Colonist ..... | Company shops |
| | ay 12 | Baggage & express.. | Company shops |
| | fy 2 | Horse express ..... | Company shops |
| | fy 8 | Horse express ..... | Company shops |
| Central New England... | by 2 | Bagg., mail & exp.. | Laconia |
| Central of Georgia..... | ax 8 | Coaches ..... | Pullman |
| | ax 3 | Baggage & mail.... | Pullman |
| | ax 3 | Express ..... | Pullman |
| Central of New Jersey.. | ax 25 | Coaches ..... | Har. & Hollingsworth |
| | ax 7 | Baggage & mail.... | Har. & Hollingsworth |
| Central Ontario..... | fw 2 | Combination ..... | Hotchkiss Blue |
| Central Pacific..... | ax 2 | Observation ..... | Pullman |
| | ay 4 | Baggage ..... | Pullman |
| | ay 5 | Baggage ..... | Pullman |
| | ay 3 | Baggage ..... | Pullman |
| | ayx 14 | Coaches ..... | Pullman |
| | ax 2 | Dining ..... | Pullman |
| | ax 2 | Buffet & baggage... | Pullman |
| Central Vermont ..... | ax 2 | Mail ..... | Amer. Car & Fdy. |
| Charleston & W. Car... | bw 2 | Coaches ..... | Amer. Car & Fdy. |
| | bw 2 | Pass. & baggage.... | Amer. Car & Fdy. |
| | bw 3 | Mail & express..... | Amer. Car & Fdy. |
| Chesapeake & Ohio..... | ax 3 | Pass. & baggage.... | Pullman |
| | ax 2 | Dining ..... | Pullman |
| | ax 15 | Coaches ..... | Pullman |
| | ax 2 | Mail ..... | Pressed Steel |
| Chicago & Alton ..... | ax 2 | Dining ..... | Pullman |
| | ay 3 | Mail ..... | Pullman |
| Chicago & Ill. Midland.. | fy 1 | Coach ..... | Penn. Co. shops |
| Chic. & Northwestern... | ay 16 | Baggage & mail.... | Amer. Car & Fdy. |
| | ay 36 | Baggage ..... | Amer. Car & Fdy. |
| | ay 32 | Smoking ..... | Amer. Car & Fdy. |
| | ay 8 | Mail ..... | Amer. Car & Fdy. |
| | ax 9 | Dining ..... | Pullman |
| | ax 5 | Observation parlor.. | Pullman |
| | ax 4 | Parlor ..... | Pullman |
| | ax 6 | Chair ..... | Pullman |
| | ay 36 | Coaches ..... | Pullman |
| Chic., Burl. & Quincy... | ax 5 | Mail & baggage..... | Amer. Car & Fdy. |
| | ax 5 | Mail & baggage..... | Amer. Car & Fdy. |
| | ax 10 | Mail ..... | Amer. Car & Fdy. |
| | ax 6 | Mail & baggage..... | Amer. Car & Fdy. |
| | ay 9 | Mail & baggage..... | Amer. Car & Fdy. |
| | ax 5 | Dining ..... | Pullman |
| Chic. Great Western.... | ax 1 | Mail ..... | Amer. Car & Fdy. |
| | ax 6 | Coaches ..... | Amer. Car & Fdy. |
| Chic., Ind. & Southern.. | ax 10 | Coaches. ..... | Standard Steel |
| Chic., Mil. & St. Paul.. | 1 | Gas-electric ..... | McKeen Motor |
| | axy 2 | Business ..... | Pullman |
| | axy 2 | Sleeping ..... | Barney & Smith |
| | ax 10 | Mail ..... | Amer. Car & Fdy. |
| Chicago, Peoria & St. L. | ax 4 | Gas-electric ..... | General Electric |
| Chic., Rock Island & Pac. | ax 20 | Coaches ..... | Pullman |
| | ax 18 | Chair ..... | Pullman |
| | ax 10 | Baggage ..... | Pullman |

a Indicates all-steel cars.
b Indicates steel underframe cars.
c Indicates steel frame cars.
d Indicates composite underframe cars.
f Indicates all-wood cars.
x Indicates electric lighting.
y Indicates gas lighting.
z Indicates acetylene lighting.
w Indicates oil lighting.

| Purchaser. | No. | Kind. | Builder. |
|---|---|---|---|
| Chic., R. I. & P. (Cont.) | ax 7 | Smoking | Pullman |
| | ax 5 | 3-Compartment | Pullman |
| | ax 4 | Horse express | Pullman |
| Chic., St. P., M. & O... | ay 4 | Baggage | Amer. Car & Fdy. |
| | ax 2 | Baggage | Amer. Car & Fdy. |
| | ay 5 | Smoking | Amer. Car & Fdy. |
| | ay 11 | Coaches | Pullman |
| | ay 1 | Pass. & smoking | Pullman |
| | ax 2 | Café | Pullman |
| Cin., N. O. & Tex. Pac. | bx 5 | Dining | Barney & Smith |
| Cleve. Cin. Chic. & St. L. | ax 2 | Bagg. and Mail. | Amer. Car & Fdy. |
| | ax 2 | Passenger & Bagg... | Amer. Car & Fdy. |
| | ax 25 | Coaches. | Amer. Car & Fdy. |
| | ax 10 | Pass. & Bagg. | Standard Steel |
| | ax 12 | Mail | Pressed Steel |
| | ax 1 | Dining | Pullman |
| Cumberland Valley | ax 13 | Coaches | Amer. Car & Fdy. |
| | ax 3 | Pass. & baggage | Amer. Car & Fdy. |
| | ax 3 | Mail, bagg. & exp.. | Pa. R. R. shops |
| Del., Lackawanna & West. | ax 30 | Coaches | Barney & Smith |
| | ax 5 | Pass. & baggage | Barney & Smith |
| | ax 1 | Officers' | Pullman |
| Denver, N. W. & Pac... | axy 3 | Coaches | Pullman |
| | axy 1 | Baggage & mail | Pullman |
| Electric Short Line | ax 1 | Gas-electric | General Electric |
| El Paso & So. Western. | ax 2 | Dining | Pullman |
| | ax 3 | Coaches | Pullman |
| | ax 2 | Baggage & express.. | Pullman |
| | ax 1 | Pass., bagg. & exp.. | Pullman |
| Erie | ax 7 | Mail | Standard Steel |
| | bx 25 | Express | Osgood Bradley |
| Executive Council of Iowa | b 1 | Fish | Amer. Car & Fdy. |
| Florida East Coast | ax 2 | Mail | Pullman |
| | ax 3 | Baggage & mail | Pullman |
| Gainesville Midland | 2 | Coaches | |
| | 1 | Combination | |
| Gal., Harrisb'g & S. Ant. | ay 7 | Baggage | Pullman |
| | ax 17 | Coaches | Pullman |
| | ax 12 | Chair | Pullman |
| | ay 1 | Gas-electric | McKeen Motor Car |
| Georgia Coast & Piedm't. | dw 3 | Coaches | |
| | dw 3 | Exp., mail & pass.. | |
| Georgia | 4 | Coaches | Company shops |
| | 3 | Baggage | Company shops |
| Grand Trunk | bc 10 | Baggage | National Steel |
| | a 5 | Mail | Amer. Car & Fdy. |
| Great Northern | ax 21 | Mail | Barney & Smith |
| | bxw 20 | Baggage | Amer. Car & Fdy. |
| | bxy 25 | Coaches | Amer. Car & Fdy. |
| | bxw 22 | Mail & baggage | Amer. Car & Fdy. |
| | ax 2 | Mail | Amer. Car & Fdy. |
| Houston, E. & W. Texas | ax 3 | Coaches | Pullman |
| Houston & Texas Cent.. | ay 5 | Baggage | Pullman |
| | ax 5 | Chair | Pullman |
| | ay 2 | Gas-electric | McKeen Motor Car |
| Illinois Central | ax 3 | Dining | Pullman |
| | ax 7 | Coaches | Pullman |
| | ax 10 | Baggage & mail | Pullman |
| | ax 10 | Mail | Pullman |
| Intercolonial | bxy 3 | Sleeping | Pullman |
| | bxy 2 | Dining | Pullman |
| | fy 2 | Mail | Canadian Car & Fdy. |
| | fy 5 | Colonist | Canadian Car & Fdy. |
| | fy 4 | 1st Class & baggage. | Canadian Car & Fdy. |
| | dy 8 | 1st Class | Preston Car & Coach |
| | dw 3 | Baggage | Preston Car & Coach |
| Interstate | f 1 | Coach | Amer. Car & Fdy. |
| Kanawha & Michigan | a 1 | Bagg., mail & exp.. | Amer. Car & Fdy. |
| Lake Erie & Youngstown | 1 | Gas-electric | McKeen Motor |
| Lake Shore & Mich. So.. | ax 4 | Mail | Amer. Car & Fdy. |
| | ax 50 | Coaches | Standard Steel |
| | ax 10 | Mail | Pressed Steel |
| | ax 30 | Baggage | Amer. Car & Fdy. |
| | ax 5 | Bagg. & Mail | Standard Steel |
| | ax 2 | Dining | Pullman |
| Lehigh Valley | ax 65 | Coaches | Pullman |
| | ax 10 | Smoking | Pullman |
| | ax 25 | Express & baggage.. | Standard Steel |
| Long Island | ax 12 | Coaches | Amer. Car & Fdy. |
| | ax 40 | Motor coaches | Amer. Car & Fdy. |
| | ax 15 | Motor pass. & bagg. | Amer. Car & Fdy. |
| | a 20 | Baggage & express.. | Amer. Car & Fdy. |
| | ax 3 | Pass. & baggage | Amer. Car & Fdy. |
| | a 1 | Club | Amer. Car & Fdy. |
| Louisiana & Ark. | ay 4 | Coaches | Amer. Car & Fdy. |
| | ay 2 | Mail & baggage | Amer. Car & Fdy. |
| Louisville & Nashville... | a 2 | Coaches | Amer. Car & Fdy. |
| | a 10 | Chair | Amer. Car & Fdy. |
| | a 2 | Baggage | Amer. Car & Fdy. |
| | a 2 | Baggage & mail | Amer. Car & Fdy. |
| | a 2 | | Amer. Car & Fdy. |
| | a 5 | Mail | Amer. Car & Fdy. |
| Louisiana & Northwest.. | a 4 | Mail | Amer. Car & Fdy. |
| | bw 2 | Coaches | Barney & Smith |
| | fw 2 | Coaches | Barney & Smith |
| | bw 2 | Coaches | Barney & Smith |
| Maine Central | ay 4 | Mail | Laconia |
| | ay 2 | Baggage | Laconia |
| | ay 2 | Baggage & mail | Laconia |
| | ay 2 | Pass. & baggage | Laconia |
| | ay 2 | Baggage & mail | Pullman |
| | ay 2 | Baggage | Pullman |
| | ay 6 | Coaches | Pullman |
| | ay 3 | Smoking | Pullman |
| Maryland & Penn. | fy 1 | Coach | Jackson & Sharp |
| McKenzie, Mann & Co., Ltd. | f 10 | 1st Class | Amer. Car & Fdy. |
| Mexican | ax 1 | Private | Barney & Smith |
| Memphis, Dallas & Gulf. | fw 3 | Coaches | |
| | fw 1 | Mail & express | |
| Michigan Central | ax 20 | Coaches | Pullman |
| | ax 10 | Coaches | Pressed Steel |
| | ax 15 | Baggage | Amer. Car & Fdy. |
| | ax 5 | Bagg. & Mail | Standard Steel |
| | ax 2 | Dining | Pullman |

| Purchaser. | No. | Kind. | Builder. |
|---|---|---|---|
| Midland Valley | ax 1 | Gas-electric | General Electric |
| Minneapolis & Northern. | 2 | Gas-electric | McKeen Motor |
| Minn., St. P. & S. S. M. | ax 6 | Coaches | Barney & Smith |
| | ax 2 | Parlor | Barney & Smith |
| | ax 2 | Cafe-observation | Barney & Smith |
| Minn., St. P., Roch. & Dubuque Elec. | ax 2 | Gas-electric | General Electric |
| | 3 | Gas-electric | General Electric |
| Minnesota Northwestern. | 1 | Gas-electric | General Electric |
| Mo., Kansas & Texas... | ay 5 | Mail | Pullman |
| | ay 3 | Baggage & mail | Pullman |
| | ay 5 | Pass. & mail | Pullman |
| | ax 3 | Dining | Pullman |
| | ay 10 | Baggage | Pullman |
| | ax 5 | Chair | Pullman |
| Mo., Okla. & Gulf. | bx 1 | Gas-electric | "Dracar" |
| Morgan's Louisiana & T. | ay 2 | Gas-electric | McKeen Motor Car |
| Nevada Northern | fw 1 | Coach | Hotchkiss Blue |
| New Orleans Gt. North. | ax 1 | Gas-electric | General Electric |
| N. O., Natalbany & Nat. | fy 2 | Coaches | Fitzhugh Luther |
| | fy 1 | Combination | Fitzhugh Luther |
| N. Y. Cen. & Hud. River. | ax 30 | Coaches | Amer. Car & Fdy. |
| | ax 25 | Coaches | Amer. Car & Fdy. |
| | ax 35 | Coaches | Pressed Steel |
| | ax 10 | Pass. & Baggage | Standard Steel |
| | ax 5 | Mail | Pressed Steel |
| | ax 30 | Bagg. & Mail | Pullman |
| | ax 10 | Bagg. & Mail | Standard Steel |
| | ax 2 | Dining | Pullman |
| N. Y., Chic. & St. Louis | ax 6 | Coaches | Amer. Car & Fdy. |
| N. Y., New Haven & H. | ax 121 | Coaches | Osgood Bradley |
| | ax 29 | Smoking | Osgood Bradley |
| | ax 4 | Motor coaches | Standard Steel |
| | ax 2 | Baggage | Laconia |
| New York Ont. & West.. | 10 | | Amer. Car & Fdy. |
| N. Y., Phila. & Norfolk. | ax 2 | Coaches | Pa. R. R. shops |
| Norfolk Southern | fw 6 | Coaches | Amer. Car & Fdy. |
| | bxw 3 | Mail & baggage | Amer. Car & Fdy. |
| | fx 5 | Coaches | Southern |
| Norfolk & Western | ax 5 | Dining | Amer. Car & Fdy. |
| | ax 1 | Officers' | Pullman |
| Northern Pacific | ax 12 | Mail | Pressed Steel |
| Oregon & California | ay 2 | Baggage | Pullman |
| Oregon Electric | dx 6 | Motor bagg. & exp.. | St. Louis |
| | dx 6 | Baggage & express.. | St. Louis |
| Oregon Short Line | axy 1 | Dining | Pullman |
| | axy 5 | Baggage & mail | Pullman |
| | axy 1 | Mail | Pullman |
| | axy 5 | Chair | Pullman |
| | axy 5 | Baggage | Pullman |
| Ore.-Wash. R. R. & Nav. | 1 | Gas-electric | McKeen Motor |
| | axy 1 | Observation | Pullman |
| | axy 15 | Coaches | Pullman |
| | ay 2 | Baggage & mail | Pullman |
| | ay 2 | Mail | Pullman |
| | axy 4 | Baggage | Pullman |
| Pacific Gt. Eastern | 2 | Gas-electric | Hall Scott |
| Pennsylvania | a 13 | Coaches | Amer. Car & Fdy. |
| | a 3 | Pass. & baggage | Amer. Car & Fdy. |
| | ax 70 | Coaches | Standard Steel |
| | ax 20 | Pass. & baggage | Standard Steel |
| | ax 2 | Private | Company shops |
| | ax 35 | Milk | Amer. Car & Fdy. |
| | ax 5 | Dining | Company shops |
| | ax 105 | Motor coaches | Pressed Steel |
| | ax 5 | Motor bagg. & mail. | Company shops |
| | ax 20 | Baggage & mail | Company shops |
| | ax 5 | Baggage & mail | Company shops |
| | ax 45 | Motor coaches | Amer. Car & Fdy. |
| | ax 50 | Motor coaches | Company shops |
| | ax 25 | Baggage | Amer. Car & Fdy. |
| | ax 5 | Horse express | Amer. Car & Fdy. |
| Penna. Lines West | ax 2 | Mail | Amer. Car & Fdy. |
| | ax 7 | Coaches | Amer. Car & Fdy. |
| | ax 5 | Baggage | Amer. Car & Fdy. |
| | ax 5 | Dining | Standard Steel |
| | ax 10 | Coaches | Standard Steel |
| | ax 25 | Coaches | Pressed Steel |
| | ax 1 | Business | Pullman |
| | ax 31 | Pass. & baggage | Amer. Car & Fdy. |
| Peoria & Eastern | ax 1 | Pass. & Bagg. | Amer. Car & Fdy. |
| Pere Marquette | ax 1 | Gas-electric | General Electric |
| Phila. & Reading | ax 50 | Coaches | Har. & Hollingsworth |
| | ax 6 | Baggage | Company shops |
| Pittsburgh & Lake Erie.. | by 3 | Coaches | Amer. Car & Fdy. |
| | ax 20 | Coaches | Pressed Steel |
| | ax 4 | Bagg. & Pass. | Standard Steel |
| | ax 4 | Baggage | Amer. Car & Fdy. |
| | ax 2 | Bagg. & Mail | Standard Steel |
| | ax 1 | Dining | Pullman |
| Quebec & Lake St. John | fw 4 | 1st Class | Hotchkiss Blue |
| | fw 4 | 2nd Class | Hotchkiss Blue |
| | fw 4 | Combination | Hotchkiss Blue |
| | fy 2 | Sleeping | Hotchkiss Blue |
| Quebec Central | fw 2 | Pass. & baggage | Company shops |
| | fx 2 | Coaches | Company shops |
| Rutland | bx 2 | Coaches | Osgood Bradley |
| | by 3 | Smoking | Osgood Bradley |
| | by 1 | Mail & baggage | Osgood Bradley |
| | bx 2 | Baggage | Osgood Bradley |
| | bxy 1 | Dining | Osgood Bradley |
| St. Louis So. W. | ax 2 | Parlor | Amer. Car & Fdy. |
| | ax 8 | Gas-electric | General Electric |
| | bz 1 | Office | Amer. Car & Fdy. |
| Salt Lake & Utah | 3 | Gas-electric | Hall Scott |
| Seaboard Air Line | ax 1 | Private | Pullman |
| | ax 5 | Express | Pullman |
| | ax 6 | Dining | Pullman |
| | ax 10 | Coaches | Pressed Steel |
| Southern | ax 3 | Dining | Barney & Smith |
| Southern Pacific | ax 4 | Observation | Pullman |
| | ay 6 | Baggage & mail | Pullman |
| | ax 4 | Baggage | Pullman |
| | ay 4 | Baggage | Pullman |
| | ay 3 | Baggage | Pullman |
| | axy 23 | Coaches | Pullman |

| Purchaser. | No. | Kind. | Builder. |
|---|---|---|---|
| Southern Pacific (Cont.) | ax 4 | Dining | Pullman |
| | ax 4 | Buffet & baggage | Pullman |
| Superior Rolling Stock Co., Ltd. | f 1 | Baggage & exp. | Can. Car & Fdy. |
| Temiskaming & Nor. Ont. | ax 3 | 1st Class | Pullman |
| | ax 2 | 2nd Class | Pullman |
| | ax 3 | Pass. & smoking | Pullman |
| | ax 3 | Baggage & mail | Pullman |
| | ax 2 | Baggage & express | Pullman |
| Terminal Railroad Assn. | b 1 | Private | Amer. Car & Fdy. |
| Texas & New Orleans | ax 3 | Chair | Pullman |
| Texas & Pacific | bxy 1 | Business | Amer. Car & Fdy. |
| | ay 1 | Mail & baggage | Amer. Car & Fdy. |
| Toledo & Ohio Central | ax 1 | Bagg. & Mail. | Standard Steel |
| Toledo, Peoria & W. | bw 2 | Coaches | Pullman |
| Toronto, Ham. & Buff. | by 1 | Baggage | Amer. Car & Fdy. |
| | by 1 | 1st Class & smoking | Amer. Car & Fdy. |
| | by 3 | 1st Class | Amer. Car & Fdy. |
| Ulster & Delaware | a 3 | Mail & express | |
| Union Pacific | axy 20 | Chair | Pullman |
| | axy 5 | Baggage | Pullman |
| | ay 2 | Dining | Pullman |
| | ay 3 | Mail | Pullman |
| Vicksburg, Shreveport & Pac. | ax 2 | Mail | Amer. Car & Fdy. |
| Western Ry. of Alabama | ax 1 | Dining | Amer. Car & Fdy. |

## LOCOMOTIVES ORDERED IN 1913

| Purchaser. | No. | Cylinders. | Total Weight. | Type. | Builder. |
|---|---|---|---|---|---|
| Alabama Great Southern. | 5 | 27x30 | 272,940 | 2-8-2 | Baldwin |
| Ala., Tenn. & Nor. | 2 | 18x26 | 124,000 | 4-6-0 | Baldwin |
| Albany Southern | 1 | | 80,000 | Electric | Gen. El.-Wason |
| Algoma Steel Corp. | 1 | 21x26 | 142,000 | 0-6-0 | Baldwin |
| Aluminum Co. of Am. | 1 | 20x26 | 144,000 | 0-6-0 | American |
| American Bridge Co. | 1 | 11x16 | 44,650 | 0-4-0 | Baldwin |
| Am. Smelting & Ref. Co. | 1 | | | 0-6-0 | Baldwin |
| Ann Arbor | 1 | | | Gas-elec. | McKeen Motor |
| Aransas Harbor Term. | 1 | 17x24 | 99,850 | 2-6-0 | Baldwin |
| Arizona Eastern | †5 | 23¾x30 | 265,600 | 2-8-2 | Baldwin |
| Atch., Top. & Santa Fe. | *†35 | 17½&29x28 | 268,800 | 4-6-2 | Baldwin |
| | †29 | 25x32 | 271,000 | 2-8-2 | Baldwin |
| Atlanta & West Point | 2 | 19x24 | 120,000 | 0-6-0 | American |
| | †2 | 24x28 | 158,000 | 4-6-2 | American |
| Atlanta, Birm. & Atlantic | †5 | 24x30 | 249,900 | 2-8-2 | Baldwin |
| Atlantic Coast Line | †25 | 20x26 | 173,200 | 4-6-0 | Baldwin |
| | 12 | 19x24 | 121,050 | 0-6-0 | Baldwin |
| | †11 | 22x28 | 227,900 | 4-6-2 | Baldwin |
| Atlantic Nor. & Sou. | 1 | 17x24 | 104,600 | 2-6-0 | Baldwin |
| Augusta Tr. & Trans. Co. | 1 | 10x16 | 42,000 | 0-4-4 | Davenport |
| B. C. Equipment Co. | 1 | 10x14 | | | Canadian |
| Baltimore & Ohio | *†10 | 26&41x32 | 471,000 | 0-8-8-0 | American |
| | †30 | 24x28 | 248,600 | 4-6-2 | Baldwin |
| | †110 | 26x32 | 284,500 | 2-8-2 | Baldwin |
| Bartlett Western | 1 | 18x24 | 106,730 | 2-6-0 | Baldwin |
| Bentley & Emery | 1 | 18x24 | 120,500 | 2-6-2 | Baldwin |
| Bertron, Griscom & Co. | 1 | 20x24 | 138,000 | 2-8-0 | American |
| Bessemer & Lake Erie | †4 | 24x28 | 238,000 | 4-6-2 | American |
| | 8 | 22x30 | 204,500 | 2-8-0 | American |
| | †2 | 26x30 | 262,200 | 2-8-0 | Baldwin |
| Bessemer Limestone Co. | 2 | | 52,000 | Geared | Heisler |
| Bingham & Garfield | 1 | 22x26 | 160,050 | 0-6-0 | Baldwin |
| Birmingham & So. E. | 2 | 17x24 | 108,000 | 4-6-0 | Baldwin |
| Birm., Col. & St. And. | 1 | 18x24 | 119,600 | 4-6-0 | Baldwin |
| Birmingham Southern | 3 | 17x24 | 91,000 | 0-6-0 | Baldwin |
| | 2 | 22x28 | 200,000 | 2-8-0 | American |
| Boston & Albany | †14 | 25x32 | 284,000 | 2-8-2 | American |
| | †6 | 22x36 | 241,000 | 4-6-2 | American |
| | †4 | 21x28 | 170,000 | 0-6-0 | American |
| Boyne City, Gayl'd & A. | 1 | | | Switch | |
| Bridal Veil Lbr. Co. | 1 | 15x18 | 70,750 | 0-6-0 | Baldwin |
| Bridgton & Saco River | 1 | 12x16 | 69,700 | 2-4-4 | Baldwin |
| Bklyn. East. Dist. Term. | 1 | 19x24 | 127,000 | 0-6-0 | Baldwin |
| Brooklyn Rapid Transit. | 2 | | 110,000 | Electric | Gen. El.-Wason |
| Buckhannon Chem. Co. | 1 | | 64,000 | Geared | Heisler |
| Buff., Roch. & Pitts. | †3 | 24½x26 | 262,000 | 4-6-2 | American |
| | †12 | 26½x30 | 280,000 | 2-8-2 | American |
| Butler Bros. | 2 | 17x24 | 100,000 | 0-6-0 | Baldwin |
| By-Products Coke Corp. | 1 | 19x24 | 113,200 | 0-6-0 | Baldwin |
| Cal. West. R. R. & Nav. | 1 | 15x22 | 110,100 | 2-6-2 | Baldwin |
| Calumet, Hamm'd & S.E. | 1 | 19x24 | 120,000 | Switch | Baldwin |
| Cambria & Indiana | 1 | 22x28 | 226,000 | 2-8-2 | Baldwin |
| Canadian Copper Co. | 1 | 20x26 | 155,000 | 2-6-0 | American |
| Canadian Northern | 6 | | 166,000 | Electric | General Elec. |
| | 15 | 19x26 | 123,000 | 0-6-0 | Canadian |
| | †4 | 23x28 | 213,000 | 4-6-2 | Montreal |
| | †25 | 23x26 | 188,000 | 2-8-0 | Canadian |
| | †25 | 24x32 | 220,000 | 2-8-0 | Canada Fdy. |
| Canadian Northern Ont. | †15 | 22x26 | 173,000 | 4-6-0 | Montreal |
| | †2 | 19x26 | 123,000 | 0-6-0 | Canadian |
| Canadian Pacific | †4 | 21x28 | 198,000 | 4-6-0 | Montreal |
| | †14 | 19x24 | 138,700 | 4-6-0 | Company shops |
| | †10 | 22½x28 | 217,000 | 4-6-2 | Company shops |
| | †35 | 18x26 | 138,000 | 0-6-0 | Company shops |
| | †10 | 21x28 | 194,200 | 0-8-0 | Company shops |
| | †2 | 22½x28 | 222,000 | 4-6-2 | Company shops |
| | †75 | 23½x32 | 258,000 | 4-6-0 | Montreal |
| | †10 | 23½x32 | 225,000 | 2-8-0 | Montreal |
| | †3 | 23½x32 | 225,000 | 2-8-0 | Canada Fdy. |
| | †10 | 19x24 | 147,500 | 4-6-0 | Company shops |
| | 4 | | 184,000 | Electric | General Elec. |
| Cape Girardeau Northern | 2 | 18x24 | 113,000 | 2-6-0 | American |
| Carnegie Steel Co. | 1 | 20x26 | 151,100 | 0-6-0 | Baldwin |
| | 2 | 20x26 | 147,000 | 0-6-0 | Baldwin |
| | 4 | 22x26 | 150,000 | 0-6-0 | American |
| Carolina & N. Western. | 2 | 19x26 | 130,000 | 4-6-0 | Baldwin |
| | 4 | 20x24 | 146,000 | 2-8-0 | Baldwin |
| Central of Georgia | 2 | 18x24 | 113,000 | 0-4-0 | American |
| | †4 | 23x28 | 222,300 | 4-6-2 | Baldwin |
| Central of New Jersey. | †10 | 23x28 | 219,500 | 4-6-0 | Baldwin |
| | †5 | 24x30 | 229,500 | 0-8-0 | Baldwin |
| | 3 | 21x26 | 147,500 | 0-6-0 | Company shops |
| | 1 | 18x24 | 132,000 | 4-4-0 | Company shops |
| Central Pacific | †5 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | †6 | 23¾x30 | 265,600 | 2-8-2 | Baldwin |
| | †4 | 19x26 | 155,000 | 0-6-0 | Baldwin |
| | *†5 | 26&40x30 | 435,800 | 2-8-8-2 | Baldwin |
| | †2 | 25x28 | 278,000 | 4-6-2 | American |
| | †2 | 22x28 | 208,000 | 4-6-0 | American |
| Charleston & W. Caro. | 1 | 19x24 | 126,800 | 0-6-0 | Baldwin |
| Charlotte Harbor & Nor. | 2 | 20x26 | 164,500 | 2-8-0 | American |
| Cherry R. Boom & L. Co. | 1 | 15x24 | 90,000 | 2-6-0 | Baldwin |
| Cherry Valley | 1 | 20½x28 | 175,000 | 2-8-2 | Baldwin |
| Chesapeake & Ohio | †8 | 27x28 | 290,000 | 4-6-2 | Baldwin |
| | *†12 | 22&35x32 | 425,000 | Mallett | American |
| Chesapeake Western | 1 | 19x24 | 136,500 | 2-8-0 | Davenport |
| Chicago & Alton | †10 | 25x28 | 277,350 | 4-6-2 | American |
| | †20 | 26x28 | 281,800 | 2-8-2 | Baldwin |
| | 10 | 19x26 | 154,900 | 0-6-0 | Baldwin |
| Chicago & Eastern Ill. | †2 | 26½x28 | 263,600 | 4-6-2 | American |
| Chic. & Northwestern | †20 | 27x32 | 300,000 | 2-8-2 | American |
| | †12 | 25x28 | 260,000 | 4-6-2 | American |
| | †18 | 18x24 | 140,500 | 0-6-0 | American |
| Chicago & Western Ind. | †5 | 24x30 | 213,000 | 0-8-0 | American |
| | †4 | 23x28 | 189,000 | 2-6-0 | Lima |
| | †6 | 22x26 | 150,000 | 0-6-0 | Lima |
| Chic., Burlington & Q. | †25 | 20x24 | 130,100 | 0-6-0 | Baldwin |
| | †35 | 28x32 | 310,000 | 2-8-2 | Baldwin |
| | †5 | 20x24 | 122,500 | 0-6-0 | Company shops |
| | †5 | 20x24 | 122,500 | 0-6-0 | Company shops |
| Chicago Great Western. | †5 | 26x28 | 260,000 | 4-6-2 | Baldwin |
| Chicago Junction | †8 | 20x26 | 149,000 | 0-6-0 | American |
| Chic., Mil. & St. Paul. | 35 | 19x26 | 127,000 | 0-6-0 | Company shops |
| | †10 | 20x26 | 129,000 | 0-6-0 | Company shops |
| | †10 | 24x30 | 224,000 | 2-8-0 | Company shops |
| Chic., Peoria & St. L. | 10 | 20x26 | 170,000 | 2-8-0 | American |
| Chic. River & Indiana | †2 | | 241,000 | 2-8-0 | American |
| Chic., Rock Island & Pac. | †25 | 28x30 | 320,000 | 2-8-2 | Baldwin |
| | 28 | 21x28 | 160,000 | Switch | American |
| | †2 | 21x28 | 160,000 | Switch | American |
| | †30 | 27x28 | 281,500 | 4-6-2 | American |
| | †2 | 28x28 | 333,000 | 4-8-2 | American |
| Chicago Short Line | 1 | 21x26 | 141,000 | 0-6-0 | Baldwin |
| Chic., St. P., M. & O. | †6 | 27x32 | 300,000 | 2-8-2 | American |
| | †4 | 25x28 | 260,000 | 4-6-2 | American |
| Chic., Terre Haute & S.E. | †5 | 25x32 | 244,000 | 2-8-0 | American |
| | †2 | 20x26 | 163,850 | 0-8-0 | Baldwin |
| Chicago Tunnel Co. | 10 | | | Electric | West.-Baldwin |
| Cin., Flemingsburg & S.E. | 1 | 15x24 | 95,150 | 4-6-0 | Baldwin |
| Cin., N. O. & Tex. Pac. | 10 | | | 2-8-2 | Baldwin |
| | 7 | | | 4-6-2 | American |
| Citizens' Gas Co. | 1 | 19x24 | 133,000 | 0-6-0 | American |
| A. L. Clark Lbr. Co. | 1 | 16x24 | 101,000 | 2-6-2 | Baldwin |
| Cleve., Cin., Chic. & St. L. | †10 | 21x28 | 170,500 | 0-6-0 | Baldwin |
| Coal & Coke | 2 | 22x28 | 177,850 | 2-8-0 | Baldwin |
| Coast Fish O. & Fert. Co. | 1 | 8x12 | 18,000 | 0-4-0 | Baldwin |
| Commonwealth Edison Co. | 1 | 22x26 | 152,100 | 0-6-0 | Baldwin |
| Cook Construction Co. | 1 | 17x24 | 98,700 | 0-6-0 | Baldwin |
| | 5 | 17x24 | 94,000 | 0-6-0 | Davenport |
| Coney Lbr. Co. | 1 | | 84,000 | Geared | Heisler |
| Confederation Const. Co. | 2 | 13x18 | | | Canadian |
| Consumers Co. | 1 | 10x16 | 39,000 | 0-4-0 | Davenport |
| Cornwall & Lebanon | 1 | 19x24 | 92,000 | 0-6-0 | Baldwin |
| Craig Mountain Lbr. Co. | 1 | | 104,000 | Geared | Heisler |
| Croft Lumber Co. | 1 | 15x16 | 206,560 | Geared | Baldwin |
| Cumberland & Penn. | 2 | 21x26 | 174,500 | | Company shops |
| Cuyamel Fruit Co. | 1 | 13x18 | 55,000 | 2-6-0 | Davenport |
| | 1 | 15x20 | 72,000 | 2-6-0 | Davenport |
| Danville & Western | 1 | 20x26 | 149,000 | 2-8-0 | Baldwin |
| Delaware & Hudson | 15 | | | 2-8-0 | American |
| Del., Lackawanna & West. | †1 | 25x26 | 288,000 | 4-6-2 | American |
| | †2 | 25x28 | 288,000 | 4-6-2 | American |
| | †7 | 25x28 | 286,000 | 4-6-2 | American |
| | †12 | 28x30 | 312,500 | 2-8-2 | American |
| | 1 | 16x24 | 89,000 | 0-6-0 | American |
| Delray Connecting | †1 | 21x26 | 159,000 | 0-6-0 | American |
| Denver & Salt Lake | 2 | | | | American |
| Detroit River Tunnel | 4 | | 240,000 | Electric | General Elec. |
| Detroit Terminal | †5 | 21x28 | 170,000 | 0-6-0 | American |
| Det. & Tol. Shore Line. | †3 | 23x30 | 214,300 | 2-8-0 | Baldwin |
| Dominion Coal Co., Ltd. | 1 | 21x26 | 179,000 | 2-8-0 | Montreal |
| Doniphan, Kensett & Searcy | 1 | 10x14 | 100,000 | 0-4-4-0 | Davenport |
| Duluth & Iron Range | †4 | 27x30 | 290,000 | 2-8-2 | Baldwin |
| | †2 | 27x30 | 290,000 | 2-8-2 | Lima |
| | †4 | 22x28 | 220,000 | 4-6-2 | Baldwin |
| Duluth & Northeastern. | 1 | | 100,000 | Shay | Lima |
| | 2 | 20x24 | 140,000 | 2-8-0 | Baldwin |
| Duluth & Nor. Minn. | 2 | 20x28 | 178,000 | 2-8-2 | Baldwin |
| Duluth, Missabe & No. | *†3 | 25x28 | 250,000 | 4-6-2 | Baldwin |
| Duluth, So. Shore & Atl. | †3 | 21x26 | 196,000 | 4-6-2 | American |
| | †12 | 21x30 | 186,000 | 2-8-0 | American |
| Durham & Southern. | 1 | 18x26 | 126,000 | | Baldwin |
| Elber Lbr. & Shingle Co. | 1 | | 104,000 | Geared | Heisler |
| El Paso & So. Western. | †3 | 29x30 | 328,000 | 2-8-2 | American |
| Emporia Mfg. Co. | 1 | | 64,000 | Geared | Heisler |
| Enterprise Lbr. Co. | 1 | 13x22 | 78,100 | 2-6-2 | Baldwin |
| Erie | †40 | 28x32 | 344,170 | 2-8-2 | American |
| | †20 | 25x28 | 284,000 | 4-6-2 | Baldwin |
| | *†3 | 32&36x36 | 820,000 | 2-8-8-8-2 | Baldwin |
| | 20 | | | 4-6-2 | American |
| Theo. Fathause | 1 | | 46,000 | Geared | Heisler |
| Federal Furnace Co. | 1 | 21x26 | 146,100 | 0-6-0 | Baldwin |
| Ferdinand | 1 | 15x24 | 79,700 | 4-4-0 | Baldwin |
| Fernwood Lbr. Co. | 1 | 20x24 | 164,700 | 2-8-2 | Baldwin |
| Finch, Pruyn & Co. | 1 | | 84,000 | Geared | Heisler |
| Florida East Coast | 24 | | | 4-6-2 | American |
| Florida Timber Prod. Co. | 1 | 13x22 | 78,350 | 2-6-2 | Baldwin |
| Foley Bros., Welch & Stewart | 4 | 17x24 | 94,000 | 0-6-0 | Davenport |
| Frost Sibley Lbr. Co. | 1 | | 46,000 | Geared | Heisler |
| Gainesville Midland | 2 | | | | |
| Gal., Harris. & San Ant. | †25 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | 6 | 19x26 | 145,000 | 0-6-0 | Baldwin |
| | †12 | 25x28 | 278,000 | 4-6-2 | American |
| Ga. Coast & Piedmont. | 2 | 16x24 | 108,000 | 4-6-0 | Baldwin |

*Indicates compound. †Indicates superheater.

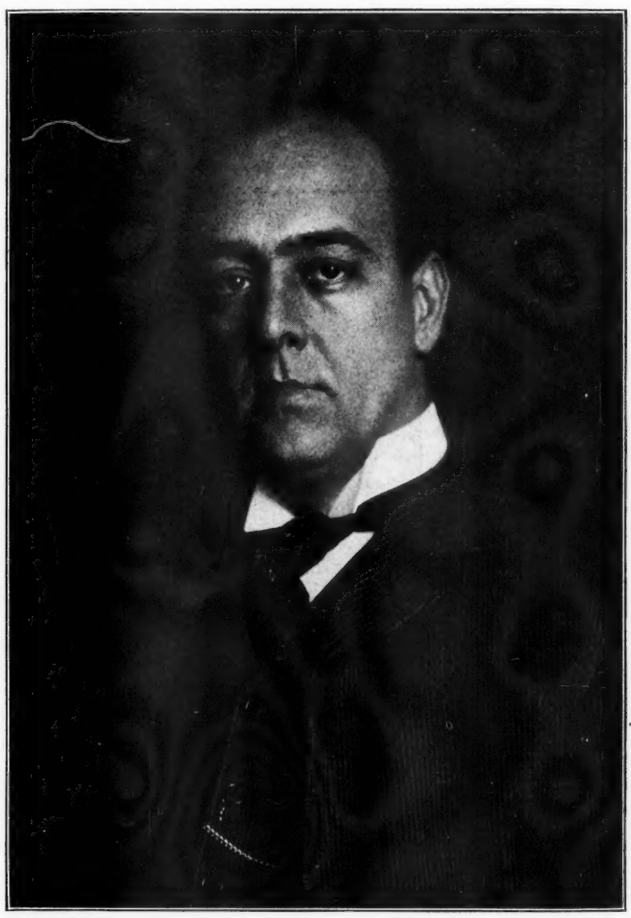
| Purchaser. | No. | Cylinders. | Total Weight, | Type. | Builder. |
|---|---|---|---|---|---|
| Georgia, Florida & Ala.. | 1 | 20x26 | 152,000 | 2-8-0 | Baldwin |
| Glen Valley Land Co... | 1 | 11x16 | 46,000 | 0-4-0 | Davenport |
| Good Pine Lbr. Co..... | 1 | 17x24 | 117,650 | 2-6-2 | Baldwin |
| Gov. Hos. for the Insane | 1 | 16x24 | 97,300 | 0-6-0 | Baldwin |
| Grace Logging Co..... | 1 | 17x24 | 118,800 | 2-6-2 | Baldwin |
| Grandley Consolidated... | 2 | | ..... | Electric | West.-Baldwin |
| Grand Rapids & Ind.... | 2 | 20x24 | 144,100 | 0-6-0 | Pa. R. R. shops |
| | †2 | 22x28 | 206,000 | 2-8-0 | Pa. R. R. shops |
| Grand Trunk ..... | †50 | 27x30 | 205,000 | 2-8-2 | Montreal |
| | †25 | 27x30 | 272,100 | 2-8-2 | Baldwin |
| Grant Smith & Co..... | 1 | 17x24 | 94,000 | 0-6-0 | Davenport |
| Grayling Lbr. Co..... | 1 | 15x24 | 90,000 | 2-6-2 | Baldwin |
| Gt. Lakes Stone & L. Co. | 1 | 12x18 | 51,000 | 0-4-0 | Baldwin |
| Great Northern ..... | †25 | 23½x30 | 235,750 | 4-6-2 | Lima |
| | †15 | 28x32 | 315,000 | 4-8-2 | Lima |
| Greenville, Spartanburg & Anderson ..... | 6 | | 120,000 | Electric | Gen. El.-Wason |
| Green Bay & Western... | 1 | 19x26 | 138,000 | 2-6-0 | American |
| Grogan Mfg. Co..... | 1 | | 72,000 | Geared | Heisler |
| Groveton, Lufkin & No.. | 1 | 18x26 | 133,500 | 4-6-0 | Baldwin |
| Guinle & Co..... | 1 | | ..... | 0-4-0 | Lima |
| Gulf, Tex. & West..... | 1 | 18x26 | 123,700 | 4-6-0 | Baldwin |
| A. Guthrie & Co..... | 2 | 7x12 | 18,500 | 0-6-0 | Davenport |
| Hamil'n Ridge Lbr. Corp | 2 | 12x16 | 55,000 | 2-6-2 | Baldwin |
| Hammond Lbr. Co..... | 1 | 17x24 | 117,750 | 2-6-2 | Baldwin |
| Hanging Rock Iron Co.. | 1 | 18x24 | 104,000 | 0-6-0 | Baldwin |
| Hannen, Hickey Bros. Const. Co. ..... | 2 | 17x24 | 94,000 | 0-6-0 | Davenport |
| Haslam Lake T.&Log.Co. | 1 | 16x24 | 108,350 | 2-6-2 | Baldwin |
| Hill Logging Co..... | 1 | 14x22 | 88,000 | 2-6-2 | Baldwin |
| Himmelberger-Harrison Lbr. Co. ..... | 1 | 11x16 | 40,000 | 2-6-0 | Davenport |
| Hocking Valley ..... | †6 | 29x28 | 324,000 | 2-8-2 | American |
| | †2 | 21x26 | 188,000 | 4-6-0 | American |
| Houston & Texas Cent.. | 6 | 19x26 | 145,000 | 0-6-0 | Baldwin |
| Howze Lbr. Co..... | 1 | | 72,000 | Geared | Heisler |
| Huron Milling Co..... | 1 | 11x16 | 42,000 | 0-4-0 | Davenport |
| Illinois Terminal ..... | 2 | 20x24 | 122,000 | 2-6-0 | Baldwin |
| Illinois Traction ..... | 6 | | ..... | Electric | St. Louis |
| Indiana Harbor Belt.... | †7 | 25x30 | 239,500 | 0-8-0 | Amer. Loco. |
| | †8 | 21x28 | 170,500 | 0-6-0 | Baldwin |
| Ingram-Day Lbr. Co.... | 1 | 18x24 | 112,400 | 4-6-0 | Baldwin |
| Inland Steel Co..... | 1 | 20x24 | 126,000 | 0-6-0 | Baldwin |
| Intercolonial ..... | †10 | 24x32 | 236,000 | 2-8-0 | Canada Fdy. |
| | †5 | 24x32 | 236,000 | 2-8-0 | Montreal |
| | †10 | 24x32 | 236,000 | 2-8-0 | Canadian |
| | †4 | 23½x28 | 230,000 | 4-6-2 | Montreal |
| | 5 | 21x26 | 150,000 | Switch | Canadian |
| | 1 | | ..... | Electric | West.-Baldwin |
| | 5 | 21x26 | ..... | Switch | Canadian |
| | 6 | 24x32 | ..... | 2-8-0 | Canadian |
| International & Gt. Nor. | 10 | 22x30 | 217,000 | 2-8-0 | American |
| | 3 | 22x30 | 217,000 | 2-8-0 | American |
| | 13 | 22x30 | 217,000 | 2-8-0 | American |
| Irish Bayou Lbr. Co.... | 1 | 11x16 | 57,250 | 2-6-2 | Baldwin |
| Isle Royale Copper Co.. | 1 | 19x26 | 179,000 | 2-8-2 | Baldwin |
| Jacksonville Term. Co... | 1 | 19x26 | 123,000 | 0-6-0 | Baldwin |
| Kanawha & Michigan... | 7 | | ..... | 2-8-0 | American |
| Kansas City & Memphis. | 1 | 21x26 | 158,700 | 4-6-0 | Baldwin |
| Kansas City Southern... | †4 | 20x28 | 157,500 | 0-6-0 | American |
| | 1 | 17x18 | 171,000 | Shay | Lima |
| Keesville, Aus. Chasm & L. Champ. ..... | 1 | 16x22 | 96,000 | 2-6-0 | American |
| Kentwood & Eastern.... | 1 | 16x20 | 74,000 | 2-6-0 | Baldwin |
| Lake Erie & Youngstown | 1 | | ..... | Gas.-elec. | McKeen Motor |
| Lake Shore & Mich. So.. | †20 | 25x30 | 239,500 | 0-8-0 | American |
| | †15 | 27x30 | 322,000 | 2-8-2 | American |
| | †5 | 23½x26 | 273,000 | 4-6-2 | American |
| | *†3 | 26&28x40 | 476,000 | Mallet | American |
| Lakeside & Marblehead.. | 1 | 21x28 | 162,000 | 0-6-0 | American |
| | 1 | 21x28 | 165,000 | 0-6-0 | American |
| Lake Sup. Term. & Tr.. | 1 | 20x26 | 150,000 | 0-8-0 | Baldwin |
| Laurel River Lbr. Co... | 1 | 16x24 | 111,350 | 2-6-2 | Baldwin |
| Lehigh & New England. | 6 | 19x26 | 143,000 | 2-8-0 | Baldwin |
| | 3 | 22x28 | 200,000 | 0-8-0 | Baldwin |
| | 1 | 23½x30 | 228,000 | 2-8-0 | Baldwin |
| Lehigh Valley ..... | †8 | 20x24 | 127,550 | 0-6-0 | Company shops |
| | 7 | 20x24 | ..... | 0-6-0 | Company shops |
| | 10 | 21x28 | ..... | 0-8-0 | Company shops |
| | 5 | 25x28 | ..... | 4-6-2 | Company shops |
| | †10 | 27x30 | 317,000 | 2-8-2 | Baldwin |
| | †25 | 27x30 | 317,000 | 2-8-2 | Baldwin |
| | †25 | 27x30 | 317,000 | 2-8-2 | Baldwin |
| Lightsey Bros. ..... | 1 | 12x16 | 55,000 | 2-6-2 | Baldwin |
| Ligonier Valley ..... | 1 | 21x28 | 181,750 | 2-8-0 | Baldwin |
| Little R., Maumelle & W. | 1 | 18x24 | 130,000 | 4-6-0 | Baldwin |
| Liveoak, Perry & Gulf.. | 1 | 18x26 | 126,000 | 4-6-0 | Baldwin |
| W. H. Loomis Cont. Co. | 2 | 11x16 | 37,000 | 0-4-0 | Baldwin |
| Lewisburg & Ronceverte. | 1 | | ..... | Electric | West.-Baldwin |
| Louisiana & Ark..... | 4 | 21x28 | 183,000 | 4-6-0 | Baldwin |
| Louisiana & Northwest.. | 1 | 18x24 | 134,000 | 4-6-0 | Baldwin |
| La., & Texas Lbr. Co... | 1 | 17x24 | 124,050 | 2-8-2 | Baldwin |
| Louisiana Ry. & Nav... | 3 | 20x26 | 158,550 | 4-6-0 | Baldwin |
| | †2 | 20x26 | 150,000 | 2-8-0 | Baldwin |
| | †3 | 20x26 | 154,000 | 4-6-0 | Baldwin |
| Lufkin Land & Lbr. Co. | 1 | 15x20 | 88,650 | 2-6-2 | Baldwin |
| J. D. McArthur Co., Ltd. | 2 | 19x26 | 130,000 | 2-6-0 | American |
| Mac a Mac Corp..... | 1 | 19x26 | 133,000 | 2-6-0 | American |
| Maine Central ..... | 4 | | ..... | 2-8-0 | American |
| | 3 | | ..... | 2-8-2 | American |
| | 3 | | ..... | 4-6-2 | American |
| Manchester Saw Mills... | 1 | 13x22 | 76,500 | 2-6-2 | Baldwin |
| A. C. Manning..... | 1 | | 88,000 | Geared | Heisler |
| John Marsch ..... | 2 | 19x24 | 108,000 | 0-6-0 | Baldwin |
| Maryland & Penn..... | 2 | 20x26 | 132,000 | 0-6-0 | Baldwin |
| Maryland Steel Co..... | 1 | 19x24 | 108,000 | 0-6-0 | Baldwin |
| Marysville & Northern.. | 1 | 15x16 | 208,000 | Geared | Baldwin |
| Mayton Lbr. Co..... | 1 | | 68,000 | Geared | Heisler |
| Meridian Lbr. Co..... | 1 | 16x24 | 89,500 | 2-6-0 | Baldwin |
| Michigan Central ..... | †15 | | 170,500 | 0-6-0 | American |
| | †10 | 21x28 | 170,500 | 0-6-0 | Baldwin |
| Michigan Central (Cont.) | †25 | 27x30 | 322,000 | 2-8-2 | American |
| | †10 | 27x30 | 322,000 | 2-8-2 | American |
| | †8 | 23½x26 | 273,000 | 4-6-2 | American |
| | 8 | | ..... | 4-6-2 | American |
| Midland Penn. ..... | 1 | 18x24 | 113,000 | 4-4-0 | Baldwin |
| Midland Valley ..... | 2 | 20x24 | 150,925 | 2-8-0 | Baldwin |
| Mineral Lake Log. Co... | 1 | 18x24 | 141,100 | 2-8-2 | Baldwin |
| Minn., St. P. & S. S. M. | †4 | 25x26 | 263,000 | 4-6-2 | American |
| | †6 | 25x30 | 225,000 | 2-8-0 | American |
| Minn., Dak. & West.... | 1 | 20x26 | 150,000 | 4-4-0 | Baldwin |
| | 1 | 19x24 | 130,000 | 4-4-0 | Baldwin |
| Minn. & Northern..... | 1 | | ..... | Gas-elec. | McKeen Motor |
| Minnesota Steel Co..... | 2 | | ..... | Electric | West.-Baldwin |
| Missouri & La..... | 1 | 15x20 | 90,805 | 2-6-0 | Baldwin |
| Montreal L. H. & P. Co. | 1 | 6x10 | 15,500 | 0-4-0 | Davenport |
| Mo., Kansas & Texas... | †40 | 26½x30 | 285,000 | 2-8-2 | American |
| Missouri Pacific ..... | †5 | 27x30 | 276,200 | 2-8-2 | Baldwin |
| | †7 | 28x30 | 296,000 | 4-8-2 | American |
| | †5 | 26x26 | 256,000 | 4-6-2 | American |
| | 25 | | ..... | 2-8-2 | Baldwin |
| Mobile & Ohio..... | †9 | 27x30 | 272,940 | 2-8-2 | Baldwin |
| | †7 | 24x30 | 224,000 | 2-8-0 | Baldwin |
| Mond Nickel Co..... | 1 | 20x26 | 156,000 | 2-6-0 | American |
| Monongahela ..... | 6 | 21x30 | 194,000 | 2-8-0 | American |
| Moore Timber Co..... | 1 | 13x22 | 76,000 | 2-6-2 | Baldwin |
| Morrissey, Fernie & Michel ..... | 2 | 20x24 | 148,000 | 2-8-0 | Baldwin |
| Native Lbr. Co..... | 1 | | 84,000 | Geared | Heisler |
| Nash., Chat. & St. Louis | †5 | 25x28 | 259,800 | 4-6-2 | Baldwin |
| Nevada-Calif. & Oregon. | 1 | 17x20 | 94,000 | 2-8-0 | Baldwin |
| Nevada Co. Nar. Gauge. | 1 | | 90,000 | Geared | Climax Mfg. |
| | 1 | | 90,000 | Geared | Heisler |
| N. J., Ind. & Ill..... | 1 | 18x24 | 120,000 | 2-6-0 | American |
| New Orleans Gt. Nor... | 1 | 20x26 | 170,000 | 4-6-0 | American |
| N. Y. Cen. & Hud. River | †20 | 23½x26 | 271,000 | 4-6-2 | American |
| | †30 | 26x26 | 272,000 | 4-6-2 | American |
| | †20 | 21x28 | 168,000 | 0-6-0 | American |
| | *†1 | 34&21½x30 | 357,000 | Mallet | American |
| | 9 | | 200,000 | Electric | Gen. El.-Amer. |
| | 6 | | 220,000 | Electric | Gen. El.-Amer. |
| N. Y., Chic. & St. Louis. | †3 | 20x26 | 173,900 | 4-6-0 | American |
| | †6 | 20x26 | 153,000 | 0-6-0 | American |
| | †6 | 20x26 | 178,000 | 2-8-0 | American |
| | †8 | 19x24 | 150,000 | 4-6-0 | American |
| N. Y., New Haven & H. | †50 | 24x28 | 248,000 | 4-6-2 | American |
| | 25 | 19x26 | 138,000 | Switch | American |
| N. Y., Phila. & Norfolk. | †1 | 22x26 | 206,800 | 4-4-2 | Pa. R. R. shops |
| | †2 | 22x28 | 202,000 | 2-8-0 | Pa. R .R. shops |
| Niagara Falls Pr. Co.... | 2 | | ..... | Electric | West.-Baldwin |
| | 24 | | ..... | Electric | West.-Baldwin |
| Norfolk & Western..... | *†40 | 22&35x32 | 405,000 | 2-6-6-2 | American |
| | †5 | 22½x28 | 247,000 | 4-6-2 | Company shops |
| Norfolk Southern ..... | †4 | 20x28 | 168,000 | 4-6-0 | Baldwin |
| | †5 | 21x28 | 167,000 | 2-8-0 | Baldwin |
| North Bend Lbr. Co.... | 1 | | 120,000 | Geared | Heisler |
| Northern Central ..... | †8 | | 244,800 | 2-8-0 | Baldwin |
| Oakland, Antioch & E.. | 2 | | ..... | Electric | West.-Baldwin |
| Ocean Shore ..... | 2 | 21x28 | 160,400 | 2-6-0 | Baldwin |
| Oconto Co. ..... | 1 | 16x24 | 103,000 | 2-6-2 | Baldwin |
| Ohio & Kentucky..... | 1 | 19x24 | 112,000 | 2-6-0 | American |
| Opdenweyer-Alcus Cyp. Co. ..... | 1 | 12x18 | 44,000 | 2-4-0 | Davenport |
| Oregon & California.... | †1 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | †2 | 23¾x30 | 265,600 | 2-8-2 | Baldwin |
| | †1 | 19x26 | 155,000 | 0-6-0 | Baldwin |
| | †1 | 25x28 | 278,000 | 4-6-2 | American |
| Oregon Short Line..... | †15 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | †5 | 25x28 | 278,000 | 4-6-2 | American |
| Ore.-Wash. R. R. & Nav. | †10 | 23¾x30 | 265,600 | 2-8-2 | Baldwin |
| | †6 | 19x26 | 145,000 | Switch | Baldwin |
| | †6 | 25x28 | 278,000 | 4-6-2 | American |
| | 1 | | ..... | Gas-elec. | McKeen Motor |
| Ouachita & Northwestern | 1 | | 108,000 | 4-6-0 | Brooks Loco. |
| Paris & Mt. Pleasant.... | 1 | 18x24 | 119,600 | 4-6-0 | Baldwin |
| Penna. Lines West..... | †25 | 26x28 | 254,080 | 2-8-0 | American |
| | †30 | 26x26 | 289,000 | 4-6-2 | Baldwin |
| | 9 | 22x24 | 170,000 | Switch | Lima |
| | †1 | 22x24 | 170,000 | Switch | Lima |
| | 15 | 22x24 | 170,000 | 0-6-0 | Baldwin |
| | †85 | 26x28 | 254,080 | 2-8-0 | American |
| | †50 | 26x28 | 254,080 | 2-8-0 | Baldwin |
| Pennsylvania ..... | 10 | | 116,500 | 0-6-0 | Company shops |
| | †22 | | 180,000 | 0-8-0 | Company shops |
| | †33 | | 240,000 | 4-4-2 | Company shops |
| | †80 | | 244,800 | 2-8-0 | Company shops |
| | †194 | 25x28 | 244,800 | 2-8-0 | Baldwin |
| | †1 | | 330,000 | 2-8-2 | Company shops |
| | †1 | | 289,000 | 4-6-2 | Company shops |
| Pennsylvania Southern... | 1 | 22x28 | 180,000 | 2-8-0 | Baldwin |
| Pere Marquette ..... | †10 | 27x30 | 285,000 | 2-8-2 | Baldwin |
| Phila. & Reading..... | 2 | 23x30 | 235,650 | 2-8-0 | Company shops |
| | †5 | 23x30 | 235,650 | 2-8-0 | Company shops |
| | 5 | 23x30 | 235,650 | 2-8-0 | Company shops |
| | †6 | 24x32 | 334,425 | 2-8-2 | Baldwin |
| Phila., Balt. & Wash.... | 2 | | 116,500 | 0-6-0 | Pa. R. R. shops |
| | †6 | | 180,000 | 0-8-0 | Pa. R. R. shops |
| | †7 | | 240,000 | 4-4-2 | Pa. R. R. shops |
| | †10 | | 224,800 | 2-8-0 | Baldwin |
| Pittsburgh & Shawmut... | 10 | 22x28 | 229,600 | 2-8-2 | Baldwin |
| Pitts., All. & McKee's R. | 1 | 18x24 | 130,000 | .... | Porter |
| Pitts., Shawmut & Nor... | 2 | 20x26 | 148,000 | 2-6-0 | Baldwin |
| | †1 | 20x26 | 163,000 | 2-6-0 | Baldwin |
| Poitevent & Favre L. Co. | 1 | 14x22 | 66,350 | 2-4-2 | Baldwin |
| | 1 | 18x24 | 119,100 | 2-6-2 | Baldwin |
| Port Huron Southern.... | 1 | 18x24 | 100,000 | 0-6-0 | Baldwin |
| Porter Bros., Grant Smith Co. ..... | 2 | 11x16 | 42,000 | 0-4-0 | Davenport |
| Potato Creek ..... | 2 | 14x12 | 144,000 | Shay | Lima |

*Indicates compound. †Indicates superheater.

(Continued on Page 37.)

## FREDERIC A. DELANO

Frederic A. Delano has resigned as president and as one of the receivers of the Wabash Railroad to become president of the Chicago, Indianapolis & Louisville. Mr. Delano entered the service of the Wabash in May, 1905, as first vice-president, and became president in October of the same year. Throughout the time that he was connected with it the Wabash was in more or less serious trouble. In its earlier history it was loaded down with a funded debt which was too heavy for it readily to carry. Not long before Mr. Delano entered its service its credit had been used to secure for it an entrance to Pittsburgh via the Wabash-Pittsburgh Terminal. The latter property was extremely expensive and unprofitable. It was, therefore, a drag on the Wabash from the start, and, although Mr. Delano gave the Wabash an exceedingly careful and economical administration, it gradually drifted toward bankruptcy, and, finally, did go into the hands of receivers late in 1911. Mr. Delano had opportunities to leave the Wabash before it became bankrupt, but hoped that by staying he could avert the catastrophe, and, anyway, did not feel like leaving what appeared to be a sinking ship. He has also had chances to leave the road since it became insolvent, but felt that he wished to stay until it was in shape to be restored to solvency. The money raised to make physical improvements has now been spent. The physical condition of the road has been much improved. Mr. Delano has always preferred to live in Chicago, while, as a receiver of the Wabash, it has been necessary for him to spend most of his time in St. Louis. He has taken a keen interest in the railway terminal problem at Chicago, and especially in that of the railways composing the Chicago & Western Indiana group, he being chairman of the Chicago & Western Indiana. The presidency of the Monon, besides being attractive in itself, gives him opportunity to live in Chicago and participate in its civic affairs and devote more time to the terminal problem of the Chicago & Western Indiana group.



F. A. Delano

Judge Adams in accepting the resignation said:

"I take this occasion to express my personal regret that Mr. Delano feels impelled to tender his resignation as one of the receivers. He has been an honest, faithful and efficient public servant, and deserves well of all persons financially interested in the Wabash Railroad. The court will greatly miss his active assistance and wise counsel in the further administration of the trust. His most generous offer to render such assistance in the future as the exigency of the case may from time to time require, is highly appreciated, and if at any time occasion arises when his great experience and knowledge will aid in the administration of the trust, the court, I am sure, will not hesitate to avail itself of his offer. I bespeak for him the greatest success in any field of enterprise to which he may devote himself."

Mr. Delano has been with the Wabash since May 1, 1905, when he was elected president of the road to succeed Joseph Ramsey, Jr. For twenty years before he had been general manager of the Chicago, Burlington & Quincy. He is a resident of Chicago, and the fact that he desired to be with his family more closely is said by his associates to be responsible for his acceptance of the Monon presidency.

Recently Mr. Delano turned down an offer from President Howard Elliott of the New York, New Haven & Hartford, because he did not desire to leave Chicago. It was rumored in railroad circles that Elliott offered him the presidency of the Boston & Maine Railroad.

Not only has Mr. Delano had an interesting and successful career as a railway officer, but he has been very active in the affairs of the railways in general. When he was a motive power officer he participated in the conventions of the mechanical associations. He served for some time as president of the Western Railway Club and helped greatly in building up that organization. After he became president of the Wabash he was elected president of the American Railway Association, and during his incumbency devoted himself to its work with the same zeal that he puts into everything. He was one of the earliest of the higher officers of the railways to participate in frank public discussion of government regulation and allied subjects, and he has written some of the best papers and delivered some of the ablest addresses along these lines. He began at a very early date to take an active interest in the question of the improvement of inland waterways, and it is doubtful if there is any other railway man in the country who has devoted more scientific study to that subject.

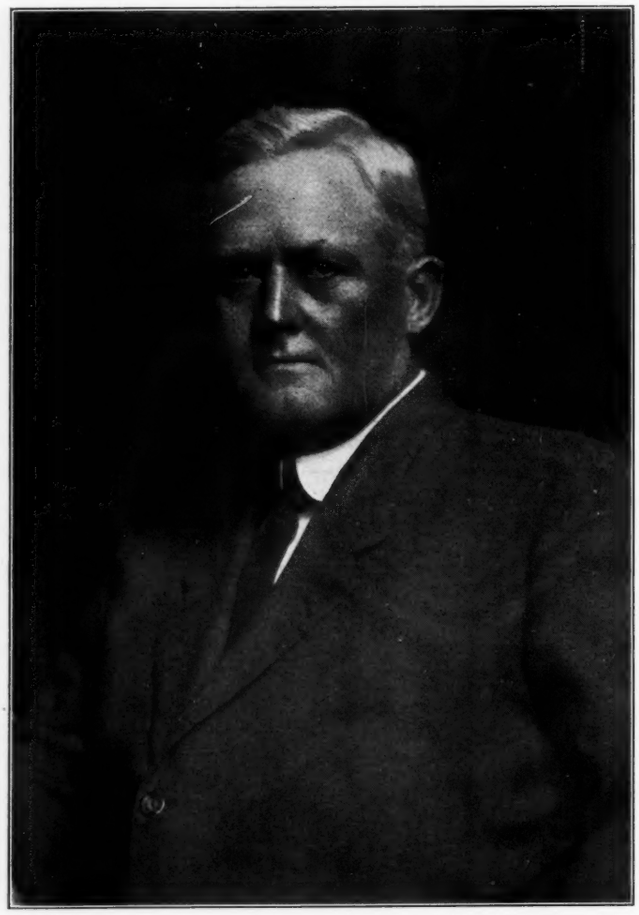
Mr. Delano also has long been very active in civic affairs. The important part which he has played in the development of the "Plan of Chicago" is not generally appreciated. When he was superintendent of freight terminals of the Chicago, Burlington & Quincy at Chicago, in the ten years from 1890 to 1900, he not uncommonly spent twelve to fifteen hours a day "on the job." He rode the switching engines and trains, not only of the Burlington, but also of other lines, until he became acquainted with almost every foot of the Chicago terminals. And the longer he stayed in this work the more he became impressed with the unnecessary complexity of the terminals which had resulted from the rivalries of the different railways and their competitive playing for position. He continued to interest himself in this subject when he became superintendent of motive power and later general manager of the Burlington, and finally prepared a brochure on the Chicago terminal situation, which was presented to the Merchants' Club. He urged on the attention of the Merchants' Club the desirability of working out some constructive plan along which Chicago could be and ought to be developed, and it was decided to take up this matter with D. H. Burnham, the architect, and

ask him to co-operate with the club in working out a plan. It developed, however, that the Commercial Club had interested Mr. Burnham in a similar project with which, however, no progress had been made. The Merchants' Club then undertook the work of elaborating a "Plan of Chicago." When, subsequently, the Merchants' Club was merged with the Commercial Club under the name of the latter, the fathering and promoting of the city plan was taken over by the Commercial Club. Mr. Delano served for a year, in 1911-1912, as president of this organization, and he has continued up to the present time to interest himself in the furthering of the adoption of the "Plan of Chicago."

Recognition of his ability, judicial mind and civic spirit has come in various ways. For example, it is well known that President Taft offered him the post of Minister to China. It is not so generally known that he once refused appointment to the Interstate Commerce Commission, for membership on which he possesses pre-eminent qualifications.

In his personal relations, whether with his fellow citizens, or his fellow railway officers, or the employees of the railways on which he has served, Mr. Delano always has been an exceptionally popular man; and no one acquainted with his democratic approachability, his big heart, and the spirit of fairness which he shows in everything, will question that his popularity has all been deserved.

Mr. Delano was born September 10, 1863, at Hong Kong, China. He graduated from Harvard University in 1885, and began railway service as a machinist apprentice in the erecting shops of the Chicago, Burlington & Quincy in the same year. Until January, 1905, he was in the continuous service of the Burlington, having been in charge of the bureau of steel rail inspection tests and records for two years from 1887; assistant to second vice-president from April, 1889, to July of the following year; then superintendent of freight terminals until January 31, 1899; superintendent of motive power from the latter date until July, 1901, and from July, 1901, until January 10, 1905, when he left the road, he was general manager. He was consulting engineer to the War Department and Philippine Commission from March 15 to May 1, 1905, when he was made first vice-president of the Wabash. Five months later he was made president of the Wabash, and for the past two years he has been receiver also of the road. He was also president of the Wheeling & Lake Erie for three years from May, 1905, and has been president of the Wabash-Pittsburgh Terminal since 1905. Mr. Delano is a member of the Board of Overseers of Harvard College, of the American Society of Civil Engineers, of the American Institute of Mining Engineers, of the Western Society of Engineers, of the Franklin Institute, of the American Railway Master Mechanics' Association, of the Master Car Builders' Association, of the International Railway Congress and of the Western Railway Club.



J. H. Peyton

## JOHN HOWE PEYTON

John Howe Peyton, assistant to president and chief engineer of construction of the Louisville & Nashville, at Louisville, Ky., has been elected president of the Nashville, Chattanooga & St. Louis, succeeding the late J. W. Thomas, Jr., and assumed his new duties on January 1, with office at Nashville, Tenn.

Mr. Peyton was born March 17, 1864, in Howard county, Mo. His family is of English descent, and his ancestors settled in the eastern part of Virginia in the seventeenth century. During his boyhood in Virginia his father, William Preston Peyton, was in very reduced circumstances, hence his educational advantages were limited. He spent five years at Roanoke College at Salem, Va., taking the ordinary academic training, but never had the advantage of a technical engineering schooling. In 1881, when he was 17 years of age, he became rodman on a corps of engineers on the Richmond & Louisville under Gen. Gabriel C. Wharton, and since that time has devoted himself almost exclusively to engineering work. He was later rodman on the Richmond & Danville, instrument man on the Tennessee & Midland and the Farmerville & Powhatan, resident engineer of the Lynchburg & Durham and the Georgia, Carolina & Northern, and from 1889 to 1891, was assistant to chief engineer of the Charleston, Clendennin & Sutton at Charleston, W. Va. He was then until 1898 engaged in general engineering and contracting work, with office at Charleston, W. Va.

When war was declared with Spain he closed his office and took service in one of the volunteer regiments of engineers as a private, and was with this regiment when it engaged in the construction of a camp at Montauk Point, Long Island. A few months later he was sent on a commission to the Philippine Islands by the bishops of the American Episcopal church to study the moral and religious conditions of our new possessions in the far east. In 1902 he entered the service of the Louisville & Nashville as a locating engineer, and has been with that company almost continually since that date. From 1904 to 1909 he was principal locating engineer of the Louisville & Nashville. In 1907 he issued the first edition of the "American Transportation Problem," dealing with a comparison between transportation facilities afforded by inland waterways and modern railways. A second edition of the book was issued in the fall of 1909.

In 1910 Mr. Peyton became assistant to the president of the Louisville & Nashville, and in 1912 was also appointed chief engineer of construction, in which positions he has had charge of the construction of about 500 miles of railway, all of which are low-grade lines, 200 miles being double-track, including the double-track line now being completed between Nashville, Tenn., and Birmingham, Ala., in accordance with the most modern standards.

# Trend of Railway Earnings in the Year 1913

## Operating Revenues Increased Most of Year; Expenses and Taxes Advanced, Causing Decline in Net Income

By Frank Haigh Dixon,

Professor of Economics, Dartmouth College; Chief Statistician, Bureau of Railway Economics.

My discussion of earnings under this same title in the *Railway Age Gazette* of one year ago closed with a statement which might very fittingly serve as an introduction to this year's analysis. It will perhaps be a warning to anyone who is ambitious to establish a reputation as a prophet. It is as follows: "The figures discussed in this article may in my opinion fairly be accepted as the preliminary indications of a changing financial situation. The heavy crops and the recurring talk of car shortages strengthen the force of this prediction. One should, however, refrain from too great optimism thus early in the period of recovery, for even though gross earnings continue to increase, an increasing proportion must be absorbed into expenses to compensate for the severe economies that many of the roads have been practicing for the past two years. Yet that the figures of net operating revenue per mile will in the absence of unforeseen and disturbing causes, show an increase during the calendar year 1913, over those of 1912, seems more than probable."

Speaking generally, this prediction held good for nearly half of the calendar year 1913, but with the month of June the favorable showing vanished and has not been since restored. The showing for the fiscal year which ended with June 30, 1913, will be first examined.

Table I, drawn from the compilations of the Interstate Commerce Commission, shows the revenues and expenses of steam roads in the aggregate and per mile of line (single track) for all railways having annual operating revenues of $1,000,000 or over. It covers four fiscal years from 1910 to 1913. It is of interest to carry the table back to include 1910 partly because that was the banner year in the history of railway earnings, and partly because the commission gave this year a peculiar significance by basing its denial of an increase in rates in 1911 largely upon the 1910 showing as to earnings. From this table it appears that so far as net earnings per mile are concerned the year 1910 still holds the record. The fiscal year 1913 shows an increase over 1911 and 1912 of both gross and net earnings, the percentage of increase per mile over 1912 amounting to about 9 per cent.; but as compared with 1910 there is a decrease per mile of 1.7 per cent. in net operating revenue, and of 4.1 per cent. in operating income, and this in the face of an increase of 8.6 per cent. in total operating revenues. In other words, the fiscal year 1913, with gross revenue of $13,787 per mile, which was $1,093 per mile greater than in 1910, so disproportionately increased its expenses, which were $1,165 per mile, or 13.9 per cent. greater than in 1910, that its net operating revenue fell below 1910 by $72 a mile, and its operating income by $159 per mile. It should be observed in this connection that taxes since 1910 have increased $85 per mile, or 17.9 per cent.

A revenue statement of this character tells only half the story. Were it possible to show a comparative balance sheet of the period, we should discover that in the face of this decline in net revenue there has been expended in the way of new investment in road and equipment a sum of money which amounted for the eastern territory alone to over $600,000,000 for the three years.

In order to show the present trend in earnings it is necessary to bring our information down nearer to date than June 30 last.

Therefore Table II has been prepared to show the revenues and expenses per mile of line on the calendar monthly basis. The

Table I.—Revenues and Expenses in the Aggregate and Per Mile of Line of Steam Roads Having Annual Operating Revenues of $1,000,000 or Over; Fiscal Years 1913, 1912, 1911 and 1910.

| | Fiscal year ending June 30. | | | | | | | | Increase or decrease per mile of line 1913 over | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1913. | | 1912. | | 1911. | | 1910. | | 1912. | | 1911. | | 1910. | |
| | Amount. | Per mile of line. | Amount. | Per mile of line. | Amount. | Per mile of line. | Amount. | Per mile of line. | Amt. | Per Ct. | Amt. | Per Ct. | Amt. | Per Ct. |
| Miles of line operated (average) | 221,749 | ..... | 219,666 | ..... | 216.330 | ..... | 210,696 | ..... | ..... | ... | ..... | ... | ..... | ... |
| Total operating revenues | $3,057,163,763 | $13,787 | $2,768,963,853 | $12,605 | $2,708,791,199 | $12,580 | $2,674,617,284 | $12,694 | $1,182 | 9.4 | $1,207 | 9.6 | $1,093 | 8.6 |
| Total operating expenses | 2,118,585,897 | 9,554 | 1,914,960,351 | 8,717 | 1,857,102,048 | 8,625 | 1,767,555,491 | 8,389 | 837 | 9.6 | 929 | 10.8 | 1,165 | 13.9 |
| Net operating revenue | 938,577,866 | 4,233 | 854,003,502 | 3,888 | 851,689,151 | 3,955 | 907,061,793 | 4,305 | 345 | 8.9 | 278 | 7.0 | d 72 | d1.7 |
| Net revenue—outside operations | 1,379,130 | 6 | 475,164 | 2 | 1,250,094 | 6 | 1,709,553 | 8 | 4 | ... | 0 | ... | d 2 | ... |
| Taxes | 124,356,024 | 561 | 116,419,026 | 530 | 104,446,682 | 485 | 100,254,109 | 476 | 31 | 5.8 | 76 | 15.7 | 85 | 17.9 |
| Operating income | 815,600,972 | 3,678 | 738,059,640 | 3,360 | 748,492,563 | 3,476 | 808,517,237 | 3,837 | 318 | 9.5 | 202 | 5.8 | d 159 | d4.1 |

d Decrease.

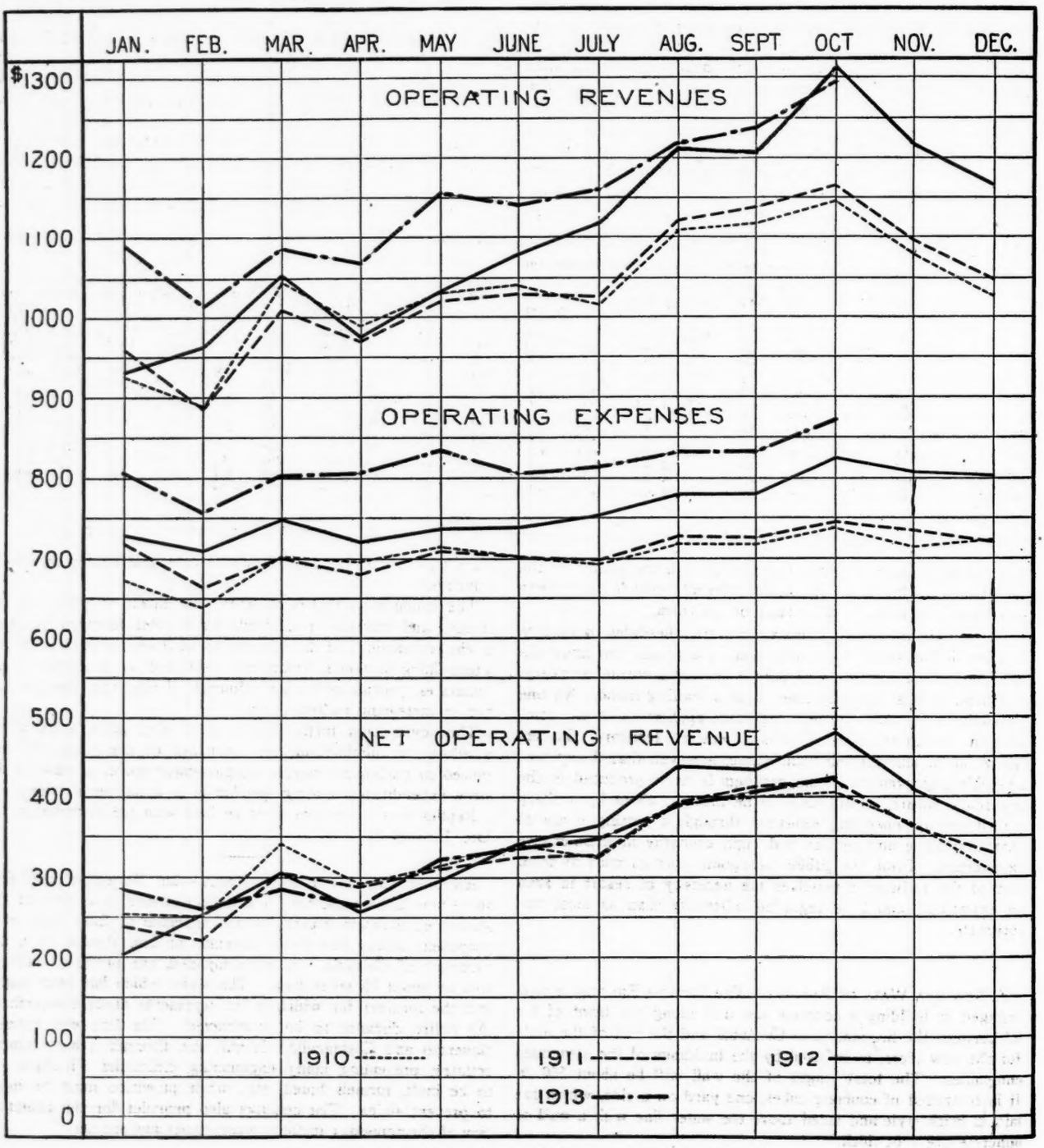
Table II.—Monthly Revenues and Expenses Per Mile of Line: 1910, 1911, 1912 and 1913.

| | Operating Revenues per Mile. | | | | | Operating Expenses per Mile. | | | | | Net Operating Revenue per Mile. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1913 | | | | | 1913 | | | | | 1913 | |
| Month. | 1910. | 1911. | 1912. | Amount. | Per cent. increase or decrease from 1912. | 1910. | 1911. | 1912. | Amount. | Per cent. increase or decrease from 1912. | 1910. | 1911. | 1912. | Amount. | Per cent. increase or decrease from 1912. |
| January | $926 | $959 | $932 | $1,091 | 17.1 | $673 | $720 | $728 | $807 | 10.9 | $253 | $239 | $203 | $285 | 40.4 |
| February | 890 | 886 | 964 | 1,015 | 5.3 | 639 | 664 | 710 | 756 | 6.5 | 251 | 221 | 254 | 260 | 2.4 |
| March | 1,046 | 1,010 | 1,051 | 1,085 | 3.2 | 703 | 703 | 746 | 803 | 7.6 | 343 | 307 | 305 | 283 | d 7.2 |
| April | 991 | 970 | 974 | 1,068 | 9.7 | 697 | 681 | 717 | 806 | 12.4 | 294 | 288 | 257 | 263 | 2.3 |
| May | 1,031 | 1,020 | 1,030 | 1,154 | 12.0 | 716 | 709 | 735 | 834 | 13.5 | 315 | 311 | 295 | 321 | 8.8 |
| June | 1,042 | 1,028 | 1,075 | 1,140 | 6.0 | 703 | 704 | 737 | 803 | 9.0 | 339 | 324 | 339 | 337 | d .6 |
| July | 1,016 | 1,027 | 1,113 | 1,161 | 4.3 | 693 | 699 | 750 | 814 | 8.5 | 323 | 328 | 363 | 348 | d 4.1 |
| August | 1,110 | 1,122 | 1,211 | 1,219 | .7 | 719 | 728 | 776 | 831 | 7.1 | 391 | 394 | 435 | 388 | d 10.8 |
| September | 1,117 | 1,139 | 1,206 | 1,237 | 2.6 | 718 | 727 | 775 | 832 | 7.4 | 400 | 412 | 430 | 405 | d 5.8 |
| October | 1,146 | 1,166 | 1,311 | 1,294 | d 1.3 | 739 | 745 | 827 | 870 | 5.2 | 407 | 421 | 484 | 424 | d 12.4 |
| November | 1,079 | 1,097 | 1,218 | ... | ... | 714 | 734 | 809 | ... | ... | 365 | 362 | 409 | ... | .... |
| December | 1,028 | 1,050 | 1,165 | ... | ... | 723 | 720 | 803 | ... | ... | 304 | 329 | 362 | ... | .... |

d Decrease.

figures are drawn from the Monthly Bulletins of the Interstate Commerce Commission, with the exception of those for October 1912 and 1913, which are from the bulletins of the Bureau of Railway Economics. For every month from January to October the year 1913 shows a larger figure of operating revenues per mile than 1910 or 1911 and larger than any month of 1912, with the single exception of October, the last month reported. For the month of October there is a slight decline amounting to 1.3 per cent. The increase per mile of line of 1913 over 1912 starts in January with a percentage of 17.1 and falls irregularly to 0.7 per cent. in August. Operating expenses per mile for 1913 show for every month from January to October an increase over the figures of the three preceding years. The 1913 increase over 1912 varies from a maximum of 13.5 per cent. in May to a minimum of 5.2 per cent. in October. The explanation of the decline in the percentage of increase in operating expenses is to be found in the vigorous pruning that is now going on in the operating departments, accomplished in part by reduction of labor force. In the net revenue the month of January showed a remarkable growth amounting to 40.4 per cent. increase in 1913 as compared with 1912. But this showing was altogether exceptional, the result in part of unusual trade activity and an extraordinary movement of grain, but due especially to the mild winter of 1913 following a winter of extraordinary severity in 1912. That this situation was exceptional is revealed by the sharp fall in February which showed an increase over 1912 of only 2.4 per cent. Since May the declines have been continuous and the last month, October, shows the heaviest loss of the year, amounting to 12.4 per cent.

The results of Tables I and II are summarized graphically in




**Comparative Monthly Earnings and Expenses Per Mile of Road**

the accompanying diagram. The striking point to be observed in this diagram is the persistence with which the curve of operating expenses remains above the corresponding curves of the three previous years.

Table III divides the per mile revenues and expenses of the $1,000,000 roads for the ten months of the calendar year 1913 between the three geographical districts. The sources of information are the same as for Table II. So far as operating revenues are concerned, the results shown are generally favorable. The month of March in the eastern district and the month of October in both eastern and western districts show declines in 1913 as compared with 1912. Otherwise increases prevail, and they reach nearly 18 per cent. in some cases. In operating expenses the eastern district shows very heavy increases, which run as high as 18 per cent. in May, and in no month are less than about 8 per cent. The result is that this district makes a bad showing in net revenue and furnishes thereby a sufficient explanation of its recent application for an increase in rates. Decreases in net as compared with 1912 have been steady since June, and reached 20.3 per cent. in October. The southern district makes the best showing, with decreases from 1912 in net revenue in only two months, those of April and August. The western district since July has shared the experience of the East, though its decreases have been less serious. Both South and West seem to have been able to hold their increase in expenses down to a lower percentage than has the East. Doubtless the explanation is to be found in part in the results of the recent wage arbitrations in eastern territory which have given substantial increases to all classes of trainmen.

In the light of past experience the writer hesitates to venture any prediction as to the future, and in any case the uncertain factors are too numerous to permit of any accurate prophecy. Business, at least in many lines, is in a waiting mood. No one can foretell the outcome of the present application of the commission for an increase of rates in eastern territory. It certainly can be asserted with confidence, however, that if any considerable improvement in net earnings is to be produced in the immediate future, it will have to be brought about by a sharp curtailment of operating expenses through a cutting down of operating force and service and rigid economy in maintenance expenditure. From the public standpoint quite as truly as from that of the railways themselves the necessity of resort to such an expedient cannot be regarded otherwise than as most unfortunate.

TABLE III.—MONTHLY REVENUES AND EXPENSES PER MILE OF LINE, JANUARY TO OCTOBER, 1913, BY DISTRICTS.

| | Eastern District | | | | | | Southern District | | | | | | Western District | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oper. Rev. | | Oper. Exp. | | Net Op. Rev. | | Oper. Rev. | | Oper Exp. | | Net Op. Rev. | | Oper. Rev. | | Oper. Exp. | | Net Op. Rev. | |
| Month of 1913 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 | Am't per mile | Per cent. inc. or dec. from 1912 |
| January | $1,874 | 17.4 | $1,417 | 13.3 | $457 | 32.5 | $934 | 16.9 | $676 | 8.3 | $257 | 46.9 | $775 | 17.8 | $562 | 9.6 | $213 | 46.9 |
| February | 1,719 | 6.6 | 1,326 | 7.8 | 393 | 2.9 | 893 | 5.9 | 641 | 6.1 | 252 | 5.4 | 724 | 4.3 | 525 | 5.6 | 199 | 1.0 |
| March | 1,809 | d 1.5 | 1,412 | 8.0 | 398 | d 24.6 | 957 | 5.9 | 676 | 5.6 | 281 | 6.4 | 786 | 8.4 | 557 | 8.6 | 229 | 8.5 |
| April | 1,845 | 16.6 | 1,424 | 17.0 | 421 | 15.0 | 855 | 0.0 | 659 | 4.9 | 197 | d 13.2 | 773 | 7.1 | 563 | 10.8 | 210 | d 1.9 |
| May | 2,023 | 17.1 | 1,479 | 18.0 | 544 | 14.5 | 924 | 7.8 | 690 | 10.2 | 234 | 1.3 | 821 | 8.7 | 576 | 9.9 | 244 | 5.6 |
| June | 2,002 | 5.5 | 1,427 | 11.8 | 575 | d 7.3 | 864 | 5.4 | 639 | 7.2 | 225 | 0.4 | 825 | 7.1 | 562 | 6.6 | 262 | 7.8 |
| July | 2,029 | 5.5 | 1,446 | 12.0 | 583 | d 7.8 | 873 | 4.3 | 655 | 5.1 | 218 | 1.9 | 848 | 3.7 | 568 | 6.4 | 280 | d 1.4 |
| August | 2,125 | 0.8 | 1,471 | 9.4 | 654 | d 14.3 | 905 | 1.5 | 669 | 6.0 | 235 | d 10.0 | 896 | 0.4 | 583 | 5.2 | 313 | d 7.4 |
| September | 2,087 | 3.3 | 1,478 | 10.3 | 610 | d 10.4 | 941 | 7.5 | 670 | 8.2 | 270 | 5.5 | 935 | 0.5 | 582 | 4.1 | 353 | d 4.9 |
| October | 2,128 | d 0.5 | 1,550 | 9.7 | 578 | d 20.3 | 1,040 | 6.1 | 707 | 6.0 | 332 | 6.1 | 988 | d 4.2 | 605 | 0.3 | 383 | d 10.5 |

d Decrease.

A NEW SEA WALL IN PANAMA.—The Panama Railroad is now engaged in building a concrete sea wall along the front of the fill between the fire station at Cristobal and the end of the mole for the new piers, to be used by the buildings of the steamship companies. The total length of the wall will be about 350 ft. It is composed of concrete cubes, one yard on a side, which are laid in brick style and faced above the water line with a wall of concrete one foot thick.

## QUESTIONS ON FOLLY, FAVORITISM AND INTERTWINING INTERESTS

The Interstate Commerce Commission has addressed to the eastern roads involved in the petition for a 5 per cent. increase in freight rates, a series of questions calling for additional information. The commission says that elaborate and helpful information already has been submitted by the roads showing the diminishing net returns from operations and lessened net incomes. But these statements "do not furnish fully the data deemed by the commission to be necessary to determine the general course carriers may pursue to meet the situation." The inquiries are divided into seven groups dealing with the revenues and their conservation; returns received from transportation of various commodities and practices of carriers in granting to shippers special service and allowances; the purchases of equipment and supplies, and the uses made of them; financial history of the roads; inquiries to develop information regarding the financial interest of directors, officers or employees of the roads "in the business of parties to transactions in which the roads are also parties"; sleeping car contracts and parlor car service and results of such operations. Information is wanted regarding allowances to terminal railroads owned by industries, free switching, lighterage, loading and unloading freight; free warehousing, reconsignment, favorable rates and special train service, free hauling of private cars, and milling in transit privileges.

The commission desires to learn "the extent to which the directors and officials of railroads have other financial interests in the transactions of the carriers, to what extent conflicting and intertwining interests, commonly described as interlocking directorates, prevail and what influence, if any, this practice has had in increasing railroad costs."

The commission further seeks to develop information as to whether the diminishing net revenues of the roads are not caused by inadequate returns on passenger traffic, in view of the large expenditures relating specifically to passenger service.

Replies to all questions must be filed with the commission before January 31.

RAILROAD CONSTRUCTION IN ITALY.—In November the first stone was laid on the site of what is destined to be that of the station of Satriano Davoli, in the province of Catanzaro, of a proposed railway line from Soverato to San Venere, in a department of Calabria. When completed, the projected railway will be about 75 miles long. The work which has been begun and the contract for which is let, represents about one-sixth of the entire distance to be constructed. The line will connect Soverato and Chiarazalle. It will run through a mountainous country, presenting many engineering difficulties. Bridges are to be built, tunnels bored, etc., while provision must be made to prevent slides. The contract also provides for the construction of the necessary stations, water-tanks and sidings.

# Mileage of Railroads Block Signaled

## Space Interval System in Use on Eighty-Seven Thousand Miles; Encouraging Progress on Many Roads

The *Railway Age Gazette's* annual table of railroads using the block system, given herewith, shows a very much greater increase in 1913 than in 1912. The total mileage of road block signaled, automatic and manual together, amounts to about 9,000 miles more than the total which we were able to report one year ago; while the increase in length of road equipped with automatic block signals, 3,827 miles, is nearly twice the increase that was shown by the record made up for January 1, 1913. A part of the new automatic block signaling takes the place of the manual block system, as has been the case for two or three years past. The detailed figures appear as follows:

| | Jan. 1, 1914. Miles of road | Jan. 1, 1913. Miles of road | Jan. 1, 1912. Miles of road |
|---|---|---|---|
| Automatic | 26,123 | 22,296 | 20,335 |
| Increase over previous year.. | 3,827 | 1,961 | 2,623 |
| Manual | 61,062 | 55,935 | 56,075 |
| Increase over previous year.. | 5,127 | ..... | 2,517 |
| Both kinds | 87,185 | 78,231 | 76,410 |
| Increase | 8,954 | 1,821 | 5,140 |

These figures are to be read with the usual conditions, with which the reader is assumed to be familiar. The manual block system, on a considerable mileage of single track lines, is used ordinarily only for the protection of passenger trains from rear collisions. The Central Vermont affords an example of this style of operation. A number of other roads, while more strict than is the Central Vermont in forbidding the substitution of the time interval, still permit the suspension of the block system in the case of freight trains, where that is deemed necessary to avoid delays.

The number of roads reporting 100 per cent. of their lines block signaled is now quite large, as will be seen by a glance at the table. In reading these percentages this partial use of the block system, just mentioned, is to be borne in mind. Also, a number of roads, like the Pennsylvania, exclude from their total mileage of lines operated those on which the block system is not necessary (for the reason that all of the trains are run by one engine and crew). Freight lines are excluded in most cases. On the other hand there are several roads which have made extensive and costly installations of automatic block signals on lines which are used exclusively for freight.

In the items in the large table the comparisons with former years are made, not with the tables published in the *Railway Age Gazette's* annual review—which are in some features imperfect because of the short time allowed for the gathering of the statistics—but with the tables prepared by the Interstate Commerce Commission. The Government table for January 1, 1913, was printed in the *Railway Age Gazette* of May 16, page 1059.

In the small table at the beginning of this article, comparison has been made with the totals published in the *Railway Age Gazette* one year ago; this for the information of those readers who may not have seen both tables; but it should be observed that the totals published May 16 are quite different from those published at the beginning of the year. In other words, a number of roads sent reports to the government showing mileage which varied from those given to us; notably the Missouri Pacific, which reported to Washington 3,687 miles worked by manual block system, while the total given to us was 1,211 miles. The Iron Mountain road, controlled by the Missouri Pacific, reported 2,935 to Washington and 1,066 to the *Railway Age Gazette*. Twenty-five or more roads will be found to have made these differing reports. In two or three cases the figures printed at the beginning of the year were unofficial; but in all of the rest the explanation, so far as there is an explanation, is to be found in the fact that the reports were made up a month or two before the end of the year, while those sent to Washington were made up in January or February. These discrepancies between the two statements have to do almost or quite wholly with manual block signaling. In automatic signaling all of the roads appear to have exercised reasonable care.

Four roads appear in the list this year for the first time, the Carolina, Clinchfield & Ohio; the Chesapeake Beach; the Duluth, South Shore & Atlantic; and the Florence & Cripple Creek. The El Paso & Southwestern appeared in the *Railway Age Gazette* table one year ago, but not in that of the Interstate Commerce Commission.

Items in the present table tell of proposed new work for 1914, aggregating in length of road about 2,400 miles; of which upward of 700 miles represents automatic signals to be installed on lines already worked under the space interval, by the manual system. It will be noted that many prominent roads have nothing to say as yet concerning what they propose to do in the coming year.

Some details of proposed new work are given in the following paragraphs:

Atchison, Topeka & Santa Fe.—The totals for the four different sections of the Santa Fe system aggregate 410 miles of road, automatic, and 1,552 miles non-automatic; total, both kinds, for the whole system, 1,962 miles. The new work planned for the coming year, already reported, aggregates 125 miles of line.

Atlantic Coast Line.—The increase in automatic block signal mileage is 126 miles; the smaller total aggregate increase is due to the abandonment of the manual system on certain parts of the line now equipped with automatics.

Boston & Maine.—It is proposed to install automatic signals on 119 miles of line during the coming year.

Buffalo, Rochester & Pittsburgh.—The block system will be extended during the coming year on 45 miles of line, single track, Buffalo Creek to Ashford.

Central Vermont.—Ordinarily the space interval is maintained only behind passenger trains and snow plows; and in case of failure of the telegraph, and certain other contingencies, trains are permitted to proceed after an interval of 20 minutes.

Partial use of the block system, as reported by this road, is also reported by some other roads of light traffic.

Chicago & Eastern Illinois.—Proposed new work during the coming year, 32 miles, automatic, double track.

Chicago & North Western.—Plans for 1914 include automatic signals on 145 miles of line, single track.

Chicago, Indianapolis & Louisville.—Plans for 1914 include automatic block signals on 95 miles of line, single track. There will be one new interlocking plant.

Chicago, Milwaukee & St. Paul.—It will be noted that there is a net decrease in mileage of road block-signaled; but the mileage of automatic signals has increased 330 miles. During 1914 it is proposed to install automatic signals in place of the manual block system on 350 miles of line, double track; and in addition to this there is a length of 389 miles of road on which a new second track will be laid, involving the installation of new signals, automatic.

Chicago, Rock Island & Pacific.—The St. Paul & Kansas City Short Line is included in this item.

Cincinnati, Hamilton & Dayton.—While there is no increase in the total length of road block-signaled, the increase in automatic signaling is 109 miles.

Copper Range.—This company reports that trains are blocked when weather or other conditions require; this is attended to by the despatcher; no printed rules.

Delaware & Hudson.—The plans for 1914 include automatic block signals on 23 miles of road.

El Paso & Southwestern.—The plans for 1914 include automatic block signals on 85 miles of road.

## LENGTH OF RAILWAYS WORKED BY THE BLOCK SYSTEM JANUARY 1, 1914.

(See Notes in Accompanying Text.)

| Name of Railway | Miles of road — Automatic — Single track | Automatic — Two or more tracks | Automatic — Total | Non-automatic — Single track | Non-automatic — Two or more tracks | Non-automatic — Total | Total both kinds | Total passenger lines operated | Percentage operated under block system | Increase, miles of road |
|---|---|---|---|---|---|---|---|---|---|---|
| Albany Southern† | ... | ... | ... | 27 | 16 | 43 | 43 | 100 | ... | |
| Ann Arbor (None) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Arizona & New Mexico | 2 | ... | 2 | ... | ... | ... | 2 | 109 | 2 | ... |
| Atchison, Topeka & Santa Fe— | | | | | | | | | | |
| Eastern Lines | 22 | 127 | 149 | 488 | 483 | 971 | 1,120 | 2,680 | 41 | ... |
| Western Lines | 6 | 2 | 8 | 553 | 24 | 577 | 585 | 2,890 | 20 | 6 |
| Coast Lines | 73 | 160 | 233 | 4 | ... | 4 | 237 | 2,254 | 10 | 105 |
| Gulf, Colorado & Santa Fe | 20 | ... | 20 | ... | ... | ... | 20 | 1,536 | 1 | 17 |
| Atlanta & West Point | ... | ... | ... | ... | 6 | 6 | 6 | 86 | 13 | ... |
| Atlantic Coast Line | 2 | 177 | 179 | 322 | 29 | 351 | 530 | 3,838 | 13 | 39 |
| Auburn & Northern (*See Empire United*) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Baltimore & Ohio | 43 | 329 | 372 | 1,943 | 787 | 2,730 | 3,102 | 3,102 | 100 | ... |
| Baltimore & Ohio Chicago Terminal | 1 | 19 | 20 | ... | ... | ... | 20 | 44 | ... | 5 |
| Baltimore & Ohio Southwestern | 35 | 25 | 60 | 866 | 37 | 903 | 963 | 963 | 100 | ... |
| Baltimore & Sparrow's Point | ... | ... | ... | 2 | 3 | 5 | 5 | 5 | 100 | ... |
| Bessemer & Lake Erie | ... | ... | ... | 62 | 132 | 194 | 194 | 186 | 100 | ... |
| Boston & Maine | 434 | 630 | 1,064 | ... | ... | ... | 1,064 | 2,220 | 47 | 32 |
| Boston Elevated (elevated lines) | ... | 16 | 16 | ... | ... | ... | 16 | 16 | 100 | ... |
| Boston, Revere Beach & Lynn | ... | 14 | 14 | ... | ... | ... | 14 | 14 | 100 | ... |
| Buffalo, Rochester & Pittsburgh | 90 | 84 | 174 | 211 | 40 | 251 | 425 | 425 | 100 | ... |
| Butte, Anaconda & Pacific† | 8 | ... | 8 | ... | ... | ... | 8 | 25 | 32 | ... |
| Carolina & Northwestern | ... | ... | ... | 3 | ... | 3 | 3 | 133 | 2 | ... |
| Carolina, Clinchfield & Ohio | 10 | ... | 10 | ... | ... | ... | 10 | 256 | 3 | 10 |
| Central New England | 4 | 37 | 41 | ... | ... | ... | 41 | 302 | 13 | 8 |
| Central of Georgia | ... | ... | ... | 66 | 7 | 73 | 73 | 1,910 | 3 | ... |
| Central of New Jersey | 41 | 199 | 240 | ... | ... | ... | 240 | 464 | 52 | 28 |
| Central Vermont | ... | ... | ... | 525 | 6 | 531 | 531 | 531 | ... | ... |
| Chesapeake & Ohio | ... | 455 | 455 | 1,112 | 21 | 1,133 | 1,588 | 1,612 | 98 | ... |
| Chesapeake & Ohio Ry. of Indiana | ... | ... | ... | 262 | ... | 262 | 262 | 262 | 100 | ... |
| Chesapeake Beach | ... | ... | ... | 3 | ... | 3 | 3 | 28 | ... | ... |
| Chicago & Alton | 411 | 183 | 594 | 110 | 37 | 147 | 741 | 1,025 | 72 | ... |
| Chicago & Eastern Illinois | 58 | 154 | 212 | 192 | 31 | 223 | 435 | 1,029 | 42 | 5 |
| Chicago & North Western | 39 | 941 | 980 | 2,712 | 33 | 2,745 | 3,725 | 7,332 | 50 | 94 |
| Chicago & Western Indiana | ... | 21 | 21 | ... | 7 | 7 | 28 | 28 | 100 | ... |
| Chicago, Burlington & Quincy† | 45 | 53 | 98 | 7,895 | 709 | 8,604 | 8,702 | 8,378 | 99 | ... |
| Chicago Great Western | 256 | 86 | 342 | 49 | ... | 49 | 391 | 1,471 | 25 | 19 |
| Chicago, Indianapolis & Louisville | 294 | ... | 294 | ... | ... | ... | 294 | 595 | 49 | ... |
| Chicago Junction | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... |
| Chicago, Milwaukee & St. Paul | 365 | 434 | 799 | 4,170 | 438 | 4,608 | 5,407 | 8,542 | 63 | ... |
| Chicago, Peoria & St. Louis† | 1 | ... | 1 | 247 | ... | 247 | 248 | 248 | 100 | ... |
| Chicago, Rock Island & Pacific | 658 | 283 | 941 | 1,110 | ... | 1,110 | 2,051 | 7,212 | 28 | 117 |
| Chicago, Rock Island & Gulf | 33 | ... | 33 | ... | ... | ... | 33 | 476 | 6 | ... |
| Chicago, St. Paul, Minneapolis & Omaha | 23 | 172 | 195 | 463 | 2 | 465 | 660 | 1,672 | 39 | ... |
| Chicago, Terre Haute & Southeastern | 1 | ... | 1 | ... | ... | ... | 1 | ... | ... | ... |
| Cincinnati, Hamilton & Dayton | 118 | 27 | 145 | 538 | 19 | 557 | 702 | 889 | 79 | ... |
| Colorado Midland | ... | ... | ... | 2 | ... | 2 | 2 | 261 | ... | ... |
| Columbia & Puget Sound† | 10 | 9 | 19 | ... | ... | ... | 19 | 51 | 37 | ... |
| Cornwall & Lebanon | ... | ... | ... | 8 | 14 | 22 | 22 | 22 | 100 | ... |
| Cumberland & Pennsylvania | ... | ... | ... | 4 | 3 | 7 | 7 | 31 | 22 | ... |
| Cumberland Valley | 6 | 49 | 55 | 110 | ... | 110 | 165 | 162 | 100 | 20 |
| Delaware & Hudson | 164 | 247 | 411 | ... | 35 | 35 | 446 | 794 | 56 | ... |
| Delaware, Lackawanna & Western | 247 | 532 | 779 | ... | ... | ... | 779 | 964 | 80 | 40 |
| Denver & Rio Grande (None) | ... | ... | ... | ... | ... | ... | ... | 2,251 | ... | ... |
| Duluth & Iron Range | ... | 16 | 16 | ... | ... | ... | 16 | 200 | 8 | ... |
| Duluth, South Shore & Atlantic | ... | ... | ... | 18 | ... | 18 | 18 | 623 | ... | 18 |
| Mineral Range | ... | ... | ... | 5 | ... | 5 | 5 | 128 | ... | 5 |
| Durham & Southern | ... | ... | ... | 56 | ... | 56 | 56 | 56 | 100 | ... |
| Elgin, Joliet & Eastern | 7 | ... | 7 | ... | ... | ... | 7 | none | ... | ... |
| El Paso & Southwestern | 99 | ... | 99 | ... | ... | ... | 99 | 982 | 10 | 99 |
| Empire United Railways (Electric) | 37 | 6 | 43 | ... | ... | ... | 43 | ... | ... | ... |
| Erie,† and subsidiary lines | 17 | 302 | 319 | 820 | 590 | 1,410 | 1,729 | 2,324 | ... | ... |
| Florence & Cripple Creek | ... | ... | ... | 5 | ... | 5 | 5 | ... | ... | ... |
| Fort Dodge & Des Moines Southern | 19 | ... | 19 | 3 | ... | 3 | 22 | 120 | 19 | ... |
| Grand Trunk | ... | 78 | 78 | 842 | 245 | 1,087 | 1,165 | 1,165 | 100 | 35 |
| Great Northern | 188 | 203 | 391 | 284 | ... | 284 | 675 | 6,782 | 9 | 195 |
| Hocking Valley | ... | ... | ... | 138 | ... | 138 | 138 | 332 | 41 | ... |
| Hudson & Manhattan | 3 | 8 | 11 | ... | ... | ... | 11 | 11 | 100 | ... |
| Illinois Central | 179 | 426 | 605 | 11 | ... | 11 | 616 | 4,523 | 13 | 202 |
| Yazoo & Mississippi Valley | 16 | ... | 16 | ... | ... | ... | 16 | 1,371 | 1 | 2 |
| Illinois Traction† | 82 | 2 | 84 | ... | ... | ... | 84 | 443 | ... | ... |
| Interborough Rapid Transit (New York) | ... | 7 | 7 | ... | ... | ... | 7 | 63 | note | ... |
| Kanawha & Michigan | 2 | ... | 2 | 2 | ... | 2 | 4 | 164 | 2 | ... |
| Kentucky & Indiana Terminal | ... | ... | ... | 3 | 8 | 11 | 11 | 11 | 100 | ... |
| Kentwood & Eastern | ... | ... | ... | 3 | ... | 3 | 3 | 30 | 10 | ... |
| Lackawanna & Wyoming Valley | ... | ... | ... | 1 | 2 | 3 | 3 | 23 | 13 | ... |
| Lehigh & New England (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Lehigh Valley | 15 | 515 | 530 | 643 | 52 | 695 | 1,225 | 1,212 | 100 | ... |
| Long Island | ... | 109 | 109 | 26 | 5 | 31 | 140 | 361 | 39 | 14 |
| Louisville & Nashville | 159 | 18 | 177 | 176 | 66 | 242 | 419 | 4,468 | 9 | 108 |
| Maine Central | 438 | 62 | 500 | ... | ... | ... | 500 | 1,103 | 45 | ... |
| Portland Terminal | 4 | 12 | 16 | ... | ... | ... | 16 | 18 | 88 | ... |
| Minneapolis & St. Louis† | ... | ... | ... | 11 | ... | 11 | 11 | 1,537 | ... | ... |
| Minneapolis, St. Paul & S. S. M. | ... | ... | ... | 1,415 | 12 | 1,427 | 1,427 | 3,482 | 39 | 12 |
| Missouri, Kansas & Texas | 102 | 10 | 112 | 10 | ... | 10 | 122 | 2,889 | 4 | 102 |
| Missouri Pacific | 59 | 38 | 97 | 3,582 | 15 | 3,597 | 3,694 | 3,889 | 95 | 7 |
| St. Louis, Iron Mt. & Southern | 114 | 13 | 127 | 2,638 | 169 | 2,807 | 2,934 | 3,254 | 90 | ... |
| Mobile & Ohio | ... | 5 | 5 | 52 | ... | 52 | 57 | 827 | 6 | ... |
| Monongahela | ... | 2 | 2 | ... | ... | ... | 2 | 59 | 3 | ... |
| Munising, Marquette & Southeastern | ... | ... | ... | 4 | ... | 4 | 4 | 124 | 3 | ... |
| Nashville, Chattanooga & St. Louis | ... | ... | ... | 109 | 12 | 121 | 121 | 1,230 | 9 | ... |
| Newburgh & South Shore | ... | ... | ... | ... | 5 | 5 | 5 | ... | ... | ... |
| New York & Long Branch | ... | 38 | 38 | ... | ... | ... | 38 | 38 | 100 | ... |
| New York Central Lines— | | | | | | | | | | |
| Boston & Albany | 3 | 209 | 212 | ... | ... | ... | 212 | 377 | 56 | 3 |
| Chicago, Indiana & Southern | ... | 5 | 5 | 144 | 59 | 203 | 208 | 301 | 68 | ... |
| Cleveland, Cincinnati, Chicago & St. Louis | 2 | 99 | 101 | 543 | 283 | 826 | 927 | 1,865 | 49 | 3 |
| Lake Erie & Western | 48 | 9 | 57 | 815 | ... | 815 | 872 | 832 | 100 | ... |
| Lake Shore & Michigan Southern | 28 | 580 | 608 | 1,017 | 51 | 1,068 | 1,676 | 1,610 | 100 | ... |
| Dunkirk, Allegheny Valley & Pittsburgh | ... | ... | ... | 91 | ... | 91 | 91 | 91 | 100 | ... |
| Lake Erie & Pittsburgh | ... | ... | ... | 28 | ... | 28 | 28 | freight line | ... | ... |
| Michigan Central | ... | 272 | 272 | 901 | 19 | 920 | 1,192 | 1,192 | 100 | 2 |
| New York Central & Hudson River | 2 | 676 | 678 | 1,575 | 623 | 2,198 | 2,876 | 2,828 | 100 | ... |
| Peoria & Eastern† | ... | ... | ... | 84 | 2 | 86 | 86 | 338 | 25 | ... |
| Pittsburgh & Lake Erie | ... | 159 | 159 | 3 | ... | 3 | 162 | 166 | 97 | ... |
| New York, Chicago & St. Louis | 158 | ... | 158 | ... | ... | ... | 158 | 512 | 30 | 143 |
| New York, New Haven & Hartford | 2 | 342 | 344 | 220 | 240 | 460 | 804 | 2,012 | 39 | 88 |
| New York, Ontario & Western | 37 | 151 | 188 | ... | ... | ... | 188 | 492 | 38 | ... |

## LENGTH OF RAILWAYS WORKED BY THE BLOCK SYSTEM JANUARY 1, 1914—(Continued)

| Name of Railway | Miles of road | | | | | | | Total passenger lines operated | Percentage operated under block system | Increase, miles of road |
|---|---|---|---|---|---|---|---|---|---|---|
| | Automatic | | | Non-automatic | | | | | | |
| | Single track | Two or more tracks | Total | Single track | Two or more tracks | Total | Total both kinds | | | |
| New York, Philadelphia & Norfolk | ... | 9 | 9 | 47 | 54 | 101 | 110 | 112 | 99 | 19 |
| Norfolk & Western | 101 | 462 | 563 | 1,051 | ... | 1,051 | 1,614 | 1,879 | 89 | 29 |
| Northern Pacific | 436 | 457 | 893 | 505 | 62 | 567 | 1,460 | 5,431 | 26 | 183 |
| Northwestern Pacific | 11 | 16 | 27 | ... | ... | ... | 27 | 435 | 6 | ... |
| Pennsylvania (East of Pittsburgh and Erie) | ... | 690 | 690 | 2,966 | 960 | 3,926 | 4,616 | 4,616 | 100 | 11 |
| Grand Rapids & Indiana | ... | ... | ... | 225 | 2 | 227 | 227 | 546 | ... | 86 |
| Pennsylvania Co. | ... | 528 | 528 | 812 | 206 | 1,018 | 1,546 | 1,651 | 93 | 245 |
| Pittsburgh, Cincinnati, Chicago & St. Louis | ... | 30 | 30 | 746 | 616 | 1,362 | 1,392 | 1,415 | 98 | 276 |
| Vandalia | 6 | ... | 6 | 303 | 61 | 364 | 370 | 782 | 211 | 8 |
| Peoria & Pekin Union | ... | ... | ... | ... | 6 | 6 | 6 | 15 | 54 | ... |
| Pere Marquette | 113 | 8 | 121 | 8 | ... | 8 | 129 | 1,629 | 47 | 93 |
| Philadelphia & Reading (and subsidiaries) | 37 | 490 | 527 | 268 | 87 | 355 | 882 | 1,316 | 67 | 7 |
| Philadelphia Rapid Transit | ... | 7 | 7 | ... | ... | ... | 7 | 7 | 100 | ... |
| Quincy, Omaha & Kansas City, and Iowa & St. Louis | ... | ... | ... | 308 | ... | 308 | 308 | 308 | 100 | ... |
| Queen & Crescent Route— | | | | | | | | | | |
| Alabama & Vicksburg | 37 | ... | 37 | ... | ... | ... | 37 | 142 | 25 | 21 |
| Alabama Great Southern | 126 | ... | 126 | 155 | ... | 155 | 281 | 290 | 96 | 98 |
| Cincinnati, New Orleans & Texas Pacific | 227 | 105 | 332 | 4 | ... | 4 | 336 | 336 | 100 | ... |
| New Orleans & Northeastern | 93 | 15 | 108 | ... | ... | ... | 108 | 196 | 99 | ... |
| Richmond, Fredericksburg & Potomac | ... | ... | ... | 9 | 79 | 88 | 88 | 88 | 100 | ... |
| Rochester, S. & E. (*See Empire United*) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| St. Joseph & Grand Island (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| St. Louis & San Francisco | 694 | 34 | 728 | 90 | ... | 90 | 818 | ... | ... | ... |
| St. Louis Merchants' Bridge Terminal† | ... | 6 | 6 | ... | 1 | 1 | 7 | 10 | 70 | ... |
| St. Louis Southwestern (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | 1,443 | ... | ... |
| San Francisco-Oakland Terminal | ... | 4 | 4 | ... | ... | ... | 4 | ... | ... | ... |
| San Pedro, Los Angeles & Salt Lake | 4 | ... | 4 | ... | ... | ... | 4 | 1,135 | ... | ... |
| Seaboard Air Line | ... | ... | ... | 311 | ... | 311 | 311 | 3,060 | 10 | 100 |
| Southern | 6 | 156 | 162 | 1,938 | 289 | 2,227 | 2,389 | 6,604 | 36 | 480 |
| Southern Illinois & Missouri Bridge | ... | 5 | 5 | ... | ... | ... | 5 | 5 | 100 | ... |
| Southern Pacific, Atlantic System— | | | | | | | | | | |
| Galveston, Harrisburg & San Antonio | 280 | ... | 280 | ... | ... | ... | 280 | 1,295 | 21 | ... |
| Louisiana Western | 104 | ... | 104 | ... | ... | ... | 104 | 140 | 74 | ... |
| Morgan's Louisiana & Texas | 95 | ... | 95 | ... | ... | ... | 95 | 298 | 31 | ... |
| Texas & New Orleans | 110 | ... | 110 | ... | ... | ... | 110 | 438 | 25 | ... |
| Southern Pacific, Pacific System | 2,366 | 372 | 2,738 | 63 | ... | 63 | 2,801 | 6,748 | 41 | 242 |
| South Side Elevated (Chicago) | 5 | ... | 5 | ... | ... | ... | 5 | ... | ... | ... |
| Spokane & Inland Empire (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Spokane, Portland & Seattle† | ... | 7 | 7 | ... | ... | ... | 7 | 506 | ... | ... |
| Staten Island Rapid Transit | ... | 21 | 21 | 2 | ... | 2 | 23 | 23 | 100 | ... |
| Syracuse, Lake Shore & Northern (*See Empire United*) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Terminal R. R. Association of St. Louis | 6 | ... | 6 | ... | 1 | 1 | 7 | 13 | 53 | ... |
| Texas & Pacific | 1 | ... | 1 | ... | ... | ... | 1 | 1,885 | ... | ... |
| Tidewater Power Co† | ... | ... | ... | 6 | ... | 6 | 6 | ... | ... | ... |
| Toledo, Peoria & Western (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Toledo, St. Louis & Western | ... | ... | ... | 188 | ... | 188 | 188 | 451 | 41 | ... |
| Ulster & Delaware | 24 | ... | 24 | ... | ... | ... | 24 | 129 | 18 | ... |
| Union | ... | 1 | 1 | 1 | ... | 1 | 2 | 7 | 14 | ... |
| Union Pacific | 653 | 817 | 1,470 | 11 | ... | 11 | 1,481 | 3,612 | 41 | ... |
| Oregon-Washington R. R. & Navigation Co | 428 | 20 | 448 | 1 | ... | 1 | 449 | 1,917 | ... | 12 |
| Oregon Short Line | 545 | 57 | 602 | ... | ... | ... | 602 | 2,003 | 28 | 26 |
| Virginia & Kentucky (less than 1 mile) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Virginian | ... | ... | ... | 18 | ... | 18 | 18 | 487 | 3 | ... |
| Wabash | ... | 84 | 84 | 1,516 | 258 | 1,774 | 1,858 | 2,041 | 91 | ... |
| Wabash Pittsburgh Terminal | ... | 4 | 4 | ... | ... | ... | 4 | 63 | 6 | ... |
| Washington Southern | ... | 6 | 6 | ... | 26 | 26 | 32 | 32 | 100 | ... |
| Washington, Baltimore & Annapolis (Electric) | 14 | ... | 14 | ... | ... | ... | 14 | 90 | 15 | ... |
| Washington Terminal | ... | 2 | 2 | ... | ... | ... | 2 | 2 | 100 | ... |
| Washington Water Power Co† | 22 | ... | 22 | ... | ... | ... | 22 | ... | ... | ... |
| Western Pacific | 11 | ... | 11 | ... | ... | ... | 11 | ... | ... | ... |
| Total | 11,795 | 14,328 | 26,123 | 52,732 | 8,330 | 61,062 | 87,185 | ... | ... | ... |

†No report received; figures repeated from last year.

Great Northern.—The plans for 1914 include automatic block signals on 200 miles of line. While the net increase of road block-signaled during the past year is but 195 miles, the increase in automatic signaling is 219 miles.

Grand Trunk.—The plans of this company for the ensuing year include three mechanical interlocking plants as follows: Jackson, Mich., crossing of the Michigan Central, 24 levers; Olivers, Ind., crossing of the Lake Shore & Michigan Southern, 40 levers; Haskells, Ind., crossing of the Chicago, Indianapolis & Louisville, 24 levers.

Interborough.—The item in the table against the name of this road covers only the four-track line, that on which express trains are run. This company, however, has about 60 miles of track, altogether, on which there are automatic block signals. The total length of lines operated is 63.40 miles of road and 163.65 miles of track.

Lehigh Valley.—Automatic block signaling proposed in 1914, 76 miles, as heretofore announced.

Louisville & Nashville.—During the past year this company has installed automatic signals on 134 miles of its lines; of which a length of 52 miles was previously worked by the manual block system. Plans for new work the coming year include 200 miles of automatic block, 131 miles double track and the balance single. New power interlocking plants are to be installed at Athens, Ala., Mayton, Tenn., and at the Cumberland river bridge; and manual interlocking plants at East St. Louis, Ill.; Knoxville, Tenn.; Mobile, Ala.; Lewisburg, Tenn.; Easton, Tenn.; Maplewood, Tenn., and at French Village, Illinois.

New York Central Lines.—On the Lake Erie & Western, it is planned to install automatic block signals to replace the manual block system, between Tipton, Ind., and Kokomo, 13 miles.

New York, New Haven & Hartford.—This company is installing A. C. automatic signals on the four-track section between Stamford and New Haven, 40 miles, in place of controlled manual signals. Automatic, upper left hand, A. C., three position block signals are being installed between New Haven and Springfield, 62 miles, in place of enclosed disk signals. Plans for the next year include interlocking plants at Dedham, Myricks, Middleboro and Middleboro Junction, all in Massachusetts; Boston Switch, Rhode Island; and Stonington and Woodmont, Connecticut. In addition to this four-track automatic A. C. signaling will be put in at Pawtucket, R. I., in connection with the elimination of grade crossings. There will also be installed automatic signals at Botsford, New Milford and Brookfield Junction, Conn.

New York, Ontario & Western.—This road now uses green for the night clear indications in block signals, and yellow for caution. During the coming year semaphore signals will be substituted for exposed disk (clock work) signals on the double track line between Livingston Manor and Cadosia, 31 miles; and automatic signals will be installed from Cadosia to Apex, 8 miles, single track.

Norfolk & Western.—This company plans during the coming

year to install automatic block signals on 20 miles of its lines, as heretofore announced.

Northern Pacific.—While the net increase in mileage of road block-signaled is only 183 miles, it will be noted that the increase in lines equipped with automatic signals is 414 miles, the difference representing lines which previously had been worked by the manual block system. During the coming year the company plans to install automatic block signals on 300 miles of line, of which 50 miles at present has no block system.

Pennsylvania.—The statement of passenger lines operated excludes (as does the same item in the case of some other roads) all those lines on which only one engine is in service. In addition to the block-signaled lines shown in the table the Pennsylvania operates about 300 miles of line on which but one engine is in service, or on which no passenger trains at all are run, which yet are block-signaled. A considerable proportion of this freight-line mileage is equipped with automatic block signals.

St. Louis & San Francisco.—The decrease of 28 miles in the length of road equipped with automatic block signals is due to an error last year by which that length of road operated jointly with the Rock Island was included. The four subsidiary lines of the St. Louis & San Francisco in Louisiana and Texas, now in the hands of separate receivers, which reported last year 755 miles of line as operated under the manual block system, report this year that no lines whatever are thus operated.

Southern Pacific, Pacific System.—The total length of line block-signaled is 4 miles less than appears in the column of "total"; this is because on 4 miles of single track line both the automatic and the manual block systems are in use. The plans for the coming year include the installation of automatic block signals on 47.5 miles of line, as heretofore announced.

South Side Elevated.—This item represents a middle track used for express trains.

Union Pacific.—On the Oregon Short Line extensive double track work during the coming year will involve the construction of automatic signals on 162 miles of track. In connection with this work there will be built an all-electric interlocking plant. On the Oregon-Washington road, the following new work is planned: Automatic block signals to be installed in 1914: Single track, Umatilla, Oregon, to Ayer, Wash., 83 miles. Automatic block signals authorized in 1913 will be completed in 1914 as follows: Single track between Spokane, Wash., and Ayer, Wash., 100 miles; double track between Seattle, Wash., and Georgetown, Wash., 3.7 miles; single track between Georgetown, Wash., and Black River Junction, Wash., 5.7 miles. The following interlocking plants were authorized in 1913 and will be completed in 1914: Argo, Wash., electro-pneumatic, 47 levers. Material from the Union Switch & Signal Company; plant to be installed by railroad forces. Centralia, Wash. Mechanical plant with electric home and distant signals, approximately 24 levers. Material from the Union Switch & Signal Company; plant to be installed by railroad forces. Black River Junction, Wash. All-electric interlocking, approximately 24 levers. Contract not yet awarded. East Spokane, Wash. Electric interlocking, to be rebuilt, present plant of 52 levers to be enlarged to 64 levers to accommodate extensive track changes. Material from General Railway Signal Company.

Wabash.—In addition to the mileage shown in the tables, this company reports 38 miles single track, and 17 miles double track, as the aggregate of short sections at and near stations where automatic block signals have been installed, the lines at the same time being worked by the manual block system from station to station. The Wabash has now under construction automatic block signals on 30 miles, single track.

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A NEW RAILROAD IN COLUMBIA.—It is reported that a new railroad is projected between Cartagena and Barranquilla in Columbia. The right of way has already been secured for the greater part of the distance.

## LOCOMOTIVES ORDERED IN 1913

(*Continuation of Table from Page 28.*)

| | | | | | |
|---|---|---|---|---|---|
| Quebec & Lake St. John. | †22 | 20x24 | 154,000 | 4-6-0 | Montreal |
| Quebec Central ..... | †4 | 21x26 | 155,000 | 4-6-0 | Canadian |
| Rapides Lbr. Co., Ltd... | 1 | 15x20 | 66,800 | 2-6-0 | Baldwin |
| Republic Iron & Steel Co. | 1 | 22x26 | 150,800 | 0-6-0 | Baldwin |
| | 1 | 22x28 | 155,200 | 0-6-0 | Baldwin |
| Richmond Cedar Works. | 1 | 12x16 | 54,450 | 2-6-2 | Baldwin |
| Roanoke R. R. & Lbr. Co. | 1 | 11x18 | 47,600 | 2-6-0 | Baldwin |
| J. A. Roebling's Sons Co. | 1 | 18x24 | 101,700 | 0-4-0 | Baldwin |
| Rutland ..... | †6 | 22½x30 | 214,000 | 2-8-0 | American |
| | 1 | 19x26 | 139,000 | Switch | American |
| St. Lawrence Bridge Co. | 1 | | ..... | .... | American |
| St. Louis Nat. Stock Yds. | 1 | 19x24 | 121,000 | 0-6-0 | American |
| St. Louis Southwestern.. | †10 | 25x30 | 228,000 | 2-8-0 | Baldwin |
| | †10 | 22x28 | 209,200 | 4-6-0 | Baldwin |
| San Ant. & Aransas Pass. | 10 | 20x26 | 165,200 | 2-8-0 | Lima |
| | 8 | 20x26 | 149,650 | 2-8-0 | Baldwin |
| San Ant., Uvalde & Gulf | †2 | 20x24 | 143,000 | 4-6-0 | American |
| | 3 | 20x24 | 148,000 | 2-8-0 | American |
| San Diego & So. Eastern | 1 | 18x24 | 123,000 | 4-6-0 | American |
| Sand Springs ..... | 1 | | ..... | Electric | West.-Baldwin |
| Sandy Hook Prov. Gr'nd | 1 | 15x24 | 85,450 | 2-4-0 | Baldwin |
| Sandy Riv. & Rangeley L. | 1 | 13x16 | 67,000 | 2-6-2 | Baldwin |
| San Luis Central..... | 1 | 20x24 | 131,000 | 2-8-0 | Baldwin |
| S. Ped., Los Ang. & S. L. | †8 | 26x28 | 285,100 | 2-8-2 | American |
| | 3 | 19x26 | 145,000 | 0-6-0 | Baldwin |
| Sawyer-Goodman Co..... | 1 | 16x24 | 103,000 | 2-6-2 | Baldwin |
| Seaboard Air Line..... | †42 | 23x30 | 222,500 | 4-6-2 | American |
| | 5 | 19x28 | 144,000 | 0-6-0 | Baldwin |
| | 1 | 16x24 | 86,500 | 0-4-0 | Baldwin |
| J. Jacob Shannon & Co.. | 1 | 14x24 | 68,950 | 0-4-0 | Baldwin |
| | 1 | 10x16 | 42,900 | 0-4-0 | Baldwin |
| Shelby County ..... | 1 | 16x24 | 98,900 | 4-6-0 | Baldwin |
| Shippensburg, Newburg & Western ..... | 1 | | ..... | Electric | West.-Baldwin |
| Silver Falls Timber Co.. | 1 | 20½x28 | 176,000 | 2-8-2 | Baldwin |
| Sioux City Term..... | 1 | 19x24 | 117,000 | 0-6-0 | American |
| Skaneateles ..... | 1 | 19x26 | 132,000 | 0-6-0 | American |
| South Carolina W. Ext. | 1 | 18x24 | 117,000 | 4-4-0 | Baldwin |
| Solvay Process Co..... | 1 | | ..... | .... | American |
| | 1 | 19x24 | 122,000 | 0-6-0 | American |
| So. Dakota Central..... | 1 | | 120,000 | 2-6-0 | Baldwin |
| Southern ..... | †15 | 27x30 | 272,940 | 2-8-2 | Baldwin |
| | †10 | 24x28 | 232,000 | 4-6-2 | Baldwin |
| Southern Aluminum Co. | 1 | 14x22 | 82,100 | 2-4-2 | Baldwin |
| Southern Pacific ..... | †8 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | †12 | 23¾x30 | 265,600 | 2-8-2 | Baldwin |
| | †7 | 19x26 | 155,000 | 0-6-0 | Baldwin |
| | †3 | 25x28 | 278,000 | 4-6-2 | American |
| | †6 | 22x28 | 208,000 | 4-6-0 | American |
| Southern Pine Lbr. Co.. | 1 | 17x24 | 121,000 | 2-6-2 | Baldwin |
| Southern Ry. & Nav. Co. | 1 | 19x24 | 86,000 | 2-6-0 | Baldwin |
| | 1 | 13x22 | 56,000 | 2-4-2 | American |
| | 1 | 12x18 | 62,000 | 2-6-2 | Baldwin |
| Spok., Port. & Seattle.. | 2 | 20x26 | 154,000 | 0-6-0 | American |
| Standard Lbr. Co..... | 1 | | 104,000 | Geared | Heisler |
| | 1 | | 170,000 | Geared | Heisler |
| Standard Oil Co..... | 1 | 19x24 | 120,000 | 0-6-0 | Davenport |
| Stewartstown ..... | 1 | 17x24 | 104,000 | 2-6-0 | Baldwin |
| Alger Sullivan Lbr. Co.. | 2 | | 104,000 | Geared | Heisler |
| Sunset Timber Co..... | 1 | | 170,000 | Geared | Heisler |
| Sydney & Louisburg.... | 1 | 21x26 | 178,500 | 2-8-0 | Montreal |
| Tacoma Smelting Co.... | 1 | 12x18 | 55,000 | 0-4-0 | Davenport |
| Tall Timber Lbr. Co.... | 1 | 17x24 | 117,650 | 2-6-2 | Baldwin |
| Taylor County Lbr. Co.. | 2 | 13x22 | 77,500 | 2-6-2 | Baldwin |
| Taylor & Crate..... | 1 | | 52,000 | Geared | Heisler |
| Tenn. & No. Carolina.. | 1 | 17x22 | 120,000 | 4-6-0 | Lima |
| Texas Midland ..... | †2 | 22x28 | 196,000 | 2-8-0 | American |
| Tidewater Oil Co..... | 1 | 19x24 | 127,300 | 0-6-0 | Baldwin |
| Toledo & Ohio Central.. | †3 | 25x30 | 239,500 | 0-8-0 | American |
| Toledo, Peoria & W.... | †2 | 22x28 | 176,000 | 2-8-0 | Baldwin |
| Toledo, St. L. & West.. | 5 | 21x28 | 190,000 | 2-8-0 | Baldwin |
| Toledo Terminal..... | *†2 | 22x28 | 198,000 | 2-8-0 | American |
| Tremont & Gulf..... | 1 | 18x24 | 113,000 | 4-4-0 | Baldwin |
| | 1 | 19x26 | 132,000 | 4-6-0 | Baldwin |
| Trinity River Lbr. Co.. | 1 | 18x26 | 117,750 | 2-6-0 | Baldwin |
| Trona ..... | 1 | 23x30 | 203,000 | 2-8-0 | American |
| A. J. Twiggs & Son.... | 1 | 13x18 | 65,000 | 0-4-0 | Davenport |
| Union ..... | 5 | 24x32 | 254,000 | 2-8-0 | Baldwin |
| Union Carbide Co..... | 1 | 15x24 | ..... | .... | Canadian |
| Union Pacific ..... | †25 | 26x28 | 285,100 | 2-8-2 | Baldwin |
| | †15 | 19x26 | 145,000 | Switch | Baldwin |
| | †10 | 25x28 | 278,000 | 4-6-2 | American |
| Utah Const. Co..... | 4 | 10x16 | 38,500 | 0-4-0 | Davenport |
| Vandalia ..... | †4 | 24x26 | 263,000 | 4-6-2 | American |
| Vermont Valley ..... | 1 | 22x28 | 232,000 | 4-6-2 | American |
| Vir. & Carolina So..... | 1 | 18x26 | 126,000 | 4-6-0 | Baldwin |
| Virginia & Rainy Lake. | 2 | | ..... | 2-8-0 | Baldwin |
| Vir. & So. West..... | †3 | 27x30 | 272,940 | 2-8-2 | Baldwin |
| Virginia & Truckee..... | 1 | 18x24 | 120,000 | 4-6-0 | Baldwin |
| Vredenburgh Saw M. Co. | 1 | 16x24 | 104,000 | 4-6-0 | Baldwin |
| Wab., Chester & West... | 1 | 17x24 | 100,000 | 4-4-0 | Baldwin |
| Walsh Const. Co..... | 2 | 17x24 | 94,000 | 0-6-0 | Davenport |
| Walsh-Kahl Const. Co... | 1 | 17x24 | 94,000 | 0-6-0 | Baldwin |
| P. Welch ..... | 1 | 19x28 | 170,000 | 2-8-0 | American |
| | 4 | 7x12 | 18,500 | 0-4-0 | Davenport |
| Wenatchee Valley & No. | 1 | | 120,000 | Geared | Heisler |
| Western Maryland ..... | 5 | 21x28 | 166,000 | 0-6-0 | Baldwin |
| | 20 | | ..... | 2-8-0 | American |
| West Jersey & Seashore. | †1 | | 180,000 | Switch | Pa. R. R. shops |
| | †5 | | 240,000 | 4-4-2 | Pa. R. R. shops |
| Western N. Y. & Penna. | †6 | | 180,000 | 0-8-0 | Pa. R. R. shops |
| Western Ry. of Ala.... | †1 | 21x28 | 189,000 | 4-6-0 | American |
| W. Pascagoula Creo. Wks. | 1 | 14x18 | 67,900 | 0-4-0 | Baldwin |
| Wheeling & Lake Erie.. | †20 | 26x30 | 266,500 | 2-8-0 | American |
| White River ..... | 1 | 16x24 | 92,500 | 2-6-0 | Baldwin |
| Whiteville Lbr. Co..... | 1 | 13x22 | 78,100 | 2-6-2 | Baldwin |
| Wilson Lbr. Co..... | 1 | 14x20 | 66,000 | 2-6-0 | Davenport |
| Wisconsin & Northern.. | 1 | 19½x26 | 165,000 | 4-6-0 | American |
| Yosemite Valley ..... | 1 | 19x28 | 143,000 | 2-6-0 | Baldwin |
| Youngstown & Ohio Riv. | 1 | | ..... | Electric | West.-Baldwin |

*Indicates compound. †Indicates superheater.

# General News Department

The Tacoma, Wash., Commercial Club on December 16 celebrated with a banquet the fortieth anniversary of the entrance of the first railway into the city, the Northern Pacific.

Attorney-General Lucey of Illinois has given an opinion that the new state public utilities commission law, which becomes effective on January 1, does not prohibit the issuance of free transportation to railway officers, agents and employees.

The passenger station of the Michigan Central at Detroit, Mich., was damaged by fire on the afternoon of December 26, to the extent of about $150,000. The station was to have been abandoned within a few days, the company's new station at Fifteenth street having been just finished.

The Zapatistas have done great damage to the Cuernavaca-Balsas line of the National Railways of Mexico, having burned large wooden bridges near Cocula and Metlapa, between Iguala and Balsas, which it will take many weeks to restore. No trains have been running south of Iguala to Balsas for some time, and the whole line is in a demoralized condition.

The West Coast Lumber Manufacturers' Association has sent resolutions to President Mohler of the Union Pacific, protesting against the reported intention of the road to have all new box cars built of steel. The resolutions urge the road to reconsider and thereby "aid the railroad itself, which draws a heavy traffic from the lumber mills of this section."

Governor Tener, of Pennsylvania, has appointed five engineers to draft a code of regulations for state licensing of engineers, in accordance with a law passed in 1913. The board is to report to the governor by November 1 next. Its members are John Price Jackson, Samuel A. Taylor, George S. Webster, F. Herbert Snow and J. Murray Africa.

In anticipation of a strike of its telegraphers the St. Louis & San Francisco on December 27 laid off about 400 operators, and began to transform its telegraph lines into a telephone system. Telegraph instruments were taken out and the wires connected to telephones. On the 31st, however, it was announced that the receivers and the leaders of the telegraphers' brotherhood had come to an agreement concerning the questions of wages and other matters which had been the subject of dispute.

### Just as in the United States

Alleging that the United Railways of Yucatan, a Mexican corporation, is discharging its Mexican employees and replacing them with Americans, Cubans and Spaniards, the general union of Mexican railway employees has threatened to call a general strike, in sympathy with the alleged grievances of the employees of the Yucatan line. General Aurelio Blanquet, minister of war, has been appealed to to force the Yucatan company to discontinue the employment of foreigners.

### Twenty-Three Dictatypists

E. D. Levy, assistant general manager of the St. Louis & San Francisco, whose office is at Springfield, Mo., has 23 typewriter operators, all of whom are women, except one, and all of whom take their work from dictaphone cylinders; and on Tuesday, December 9, the 23 operators turned out 4,305 letters and telegrams. This is an average of 187 to each operator. The chief of the bureau is Miss Welch, who gives the record in the last issue of the *Frisco-man*. The number of cylinders transcribed was 320; average cylinders to each operator 13.9; highest record, Miss Ellis, 19.5 cylinders, 64 telegrams and 198 letters. The lowest record of any operator was 9.5 cylinders, 77 letters. One operator wrote 437 telegrams and 33 letters. All of the operators worked nine hours, beginning at 8 a. m. and ending at 6 p. m. A special request had been made for good work on that day, the mark set being the transcribing of 250 cylinders, or 70 less than what was actually accomplished. No operator was given any tabular work and all dictators were requested to dictate clearly and distinctly. The ordinary work of the 23 operators has been about 200 cylinders a day. G. E. Whitelam, chief clerk, sent to the operators a congratulatory letter.

### Ten Freight Cars Stolen and Carried Off

On Christmas night, about midnight, six river pirates stole a tug from a dock in Hoboken, N. J., ran it across the Hudson river, there hitched it on to a car float on which were 10 loaded cars, and pulled the float down the river towards Staten Island. The thieves evidently were after the goods in the cars, and they appear to have spent an hour or two in breaking open the cars and the packages inside. Off Stapleton, Staten Island, they turned the float loose; and it subsequently ran against and sank a number of motor boats which were anchored in that region, and did damage estimated at $15,000. The tug was taken back to Jersey City and then set adrift in the river with its sea-cocks open, so that it would sink; but it was picked up later by another tug belonging to the same company, the New York Central. The thieves, or some of them, were arrested the next day. They had secured the tug during the temporary absence of a cook who was supposed to have been sleeping on the vessel. A storm of wind and rain prevailed, making it comparatively easy to move about without being betrayed by noise. The amount of freight taken is not reported.

### General Manager Long's New Year's Message

The strength of this railroad is its men.

We are proud of the 150,000 men who operate the Pennsylvania Railroad. This railroad is what it is today because of the cooperation and joint effort of two human generations of officers and men who have made its service their life-work.

All mechanical aids that may be invented can never eliminate the ultimate responsibility which rests upon the individual man. Every man in the service has a duty to perform—a duty the proper performance of which is partly its own reward—and upon his fidelity depends a share of the successful result. It gives me the greatest pleasure to express to the officers and employees cordial appreciation of their loyalty and faithfulness during the year 1913, and to extend to them and their families my best wishes for a Happy New Year.

May the Pennsylvania Railroad in the year 1914, continue to be one of the institutions this democracy should be proud of, a railroad proving that an American corporation can have a soul and that a great spirit in a great business is making good.

### An Active Station Agent

As an example of what can be accomplished by active store to store solicitation, we have just received from one of our agents in a town of about 4,000 people 162 routing orders signed by 20 different merchants on various houses from whom they purchase goods in New York, Pittsburgh, Milwaukee, Chicago, St. Louis, Kansas City, Chattanooga, Louisville, Houston, Galveston, etc. These routing orders are on consignee's letterheads signed by a member of the firm and instructing that all future shipments for them be routed over our lines. This record represents hard work and an earnest desire to serve the company. *Sunset Central Bulletin.*

### Handsome Trainmen

The vastly improved appearance of the Sunset Central passenger train employees is already noted by the public. Habit as well as regulation, is one of the moving forces in this, as in other directions, and we easily accustom ourselves to view without ad-

verse comment conditions that would create adverse criticism on the part of others when first confronted with them. Clean collars and shirts, a ready, well meant and genial smile, courtesy and efficiency, go hand in hand. It's up to you, Mr. Trainman, to see that the conditions of your trains are in thorough keeping with your rapidly growing reputation.—*Sunset Central Bulletin.*

### Many Railway Presidents Favor Federal Supervision of Securities

The Chicago *Tribune* has recently addressed to the presidents of the principal railways of the country a request for a statement of their position as to the proposal to give the Interstate Commerce Commission power to supervise the issuance of railway securities. Many of those who replied expressed themselves as willing to have the commission given this power, but rather because they believed federal regulation is preferable to regulation by the state authorities than because of their belief in the plan of security regulation. The following are extracts from some of the replies:

C. H. Markham, president, Illinois Central—If it is necessary to have supervision over railway securities the Interstate Commerce Commission should have complete authority over them. In my judgment such regulation would go farther toward protecting the general public than commissions acting for the several states.

H. U. Mudge, president, Chicago, Rock Island & Pacific—The railways cannot go on serving so many masters and at the same time continue to give the public the kind of service it requires and deserves. Since the federal government is now regulating our rates of revenue, and to a large extent is deciding our wage disputes, it certainly is no more than just that the authority for the regulation of railway securities shall also be placed in the hands of the federal board. Personally, I think the framers of the Constitution would have included railroads under governmental supervision had such means of transportation been in existence at that time.

S. M. Felton, president, Chicago Great Western—I see no reason why the powers of the Interstate Commerce Commission should not be extended to cover supervision over railway bond and stock issues. If the recommendations of the Hadley commission could be followed it would, in my opinion, be beneficial.

Burton Hanson, general counsel, Chicago, Milwaukee & St. Paul—My personal opinion is that if the issuance of stocks and bonds by railway companies is to be subject to government control and regulation, it is desirable that such control and regulation reside in one central body having general supervision of the matter, like the Interstate Commerce Commission, rather than in the states, as is now the case.

B. A. Worthington, president, Chicago & Alton—The railroad transportation development of this country during the last half century would seem to warrant the conclusion that it would be preferable, rather than to undertake to regulate this feature by governmental authority, to permit the capitalization of railroads to be regulated by the law of supply and demand in the money markets, not only of this country but abroad.

B. F. Bush, president, Missouri Pacific—I believe there is no serious objection to the commission having supervision over the issuance of stocks and bonds, though I can see where such power can be exercised to prevent the needed extensions or the perfection of existing railway systems which would inure to the great benefit of the public. It is assumed, of course, that such supervision will extend to the indiscriminate building of new lines, and that these will be wisely restricted to territory where the development of traffic will be ample to fully justify their construction.

A. H. Smith, president, New York Central Lines—National regulation as to the purposes for which securities shall be issued and as to the application of their proceeds might be helpful not only from the public's and investor's point of view, but also as tending to avoid conflicting views of the various existing state commissions. Such action would be beneficial to all interested in restoring confidence and insuring the integrity of railroad investors, and it would be most profitable if such problems could be solved without unnecessary agitation, which is causing many misunderstandings and misgivings by investors.

F. D. Underwood, president, Erie—My opinion is that the Interstate Commerce Commission is now an overworked body and for that reason it should not be burdened further. If it be wise to supplement the existing powers of the several states over the issuance of corporate securities, which power they would not voluntarily relinquish, the power should be vested in a board of the standing of the so-called "Hadley committee," comprised of men experienced in financial affairs, nonpartisan, and permanent as to tenure of office, a self-perpetuating board of trustees. The supervision and authorization of the issuance of securities by such a body would be of obvious benefit.

E. P. Ripley, president, Atchison, Topeka & Santa Fe—In my opinion the Interstate Commerce Commission has already too much to do, besides which I do not consider it a proper function of government to regulate stock and bond issues. The proposed advance in freight rates is necessary from the standpoint of public interest, regardless of rights of railway owners, and should be granted irrespectively of any legislation as to stocks and bonds.

### New Railway Equipment in Australia

News of progress is reported from Australia. That it is showing a satisfactory development is witnessed by the fact that the railways have had to acquire so much additional railway rolling stock recently. In New South Wales, for example, beginning with December, locomotives are expected to arrive from England at the rate of eleven a month. At the same time the government workshops will turn out four locomotives a month.

## MEETINGS AND CONVENTIONS

*The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.*

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May, 1914.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass. Convention, May 19, 1914, St. Louis.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill. Next convention, April 21, Houston, Tex.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, St. Louis, Mo.; 3d Thursday and Friday in May.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 29 W. 39th St., New York. Mid-year conference, New York, January 29, 30, 31.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOC.—H. G. McConnaughy, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 17-20, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Karpen building, Chicago. June 15-17, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—A. R. Davis, Central of Georgia, Macon, Ga.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 West 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wenlinger, 11 Broadway, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Next convention, January 20-22, 1914, New Orleans, La.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, Highland Park, Ill. Annual meeting, June 24, Minneapolis, Minn

ASSOCIATION OF RAILWAY CLAIM AGENTS.—C. W. Egan, B. & O., Baltimore, Md. Next convention, May, 1914, St. Paul, Minn.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago. Next convention, May 20-23, New Orleans, La.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York.

ASSOCIATION OF WATER LINE ACCOUNTING OFFICERS.—W. R. Evans, Chamber of Commerce, Buffalo, N. Y.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—L. D. Mitchell, Detroit Graphite Co., Detroit, Mich. Meeting with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and August, Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursday, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d. Fri. in March, May, Sept., Nov., Buffalo, N. Y.

Civil Engineers' Society of St. Paul.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.

Engineers' Society of Pennsylvania.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after second Saturday, Harrisburg, Pa.

Engineers' Society of Western Pennsylvania.—E. H. Hiles, Oliver building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

Freight Claim Association.—Warren P. Taylor, Richmond, Va. Next convention, May 20-22, Galveston, Tex.

General Superintendents' Association of Chicago.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

International Railway Congress.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

International Railway Fuel Association.—C. G. Hall, 922 McCormick building, Chicago. Annual convention, May 18-22, Chicago.

International Railway General Foremen's Association.—Wm. Hall, 829 West Broadway, Winona, Minn. Next convention, July 14-17, Hotel Sherman, Chicago.

International Railroad Master Blacksmiths' Association.—A. L. Woodworth, Lima, Ohio. Next convention, third Tuesday in August.

Maintenance of Way & Master Painters' Association of the United States and Canada.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.

Master Boiler Makers' Association.—Harry D. Vought, 95 Liberty St., New York. Next annual meeting, May 26-29, Hotel Waldron, Philadelphia.

Master Car Builders' Association.—J. W. Taylor, Karpen building, Chicago. June 10-12, Atlantic City, N. J.

Master Car & Locomotive Painters' Assoc. of U. S. and Canada.—A. P. Dane, B. & M., Reading, Mass.

National Railway Appliance Assoc.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

New England Railroad Club.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

New York Railroad Club.—H. D. Vought, 95 Liberty St., New York; 3rd Friday in month, except June, July and August, New York.

Northern Railroad Club.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

Peoria Association of Railroad Officers.—M. W. Rotchford, Union Station, Peoria; 2d Thursday.

Railroad Club of Kansas City.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

Railway Business Association.—Frank W. Noxon, 30 Church St., New York.

Railway Club of Pittsburgh.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

Railway Electrical Supply Manufacturers' Assoc.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

Railway Fire Protection Association.—C. B. Edwards, Mobile & Ohio, Mobile, Ala.

Railway Gardening Association.—J. S. Butterfield, Lee's Summit, Mo.

Railway Development Association.—W. Nicholson, Kansas City Southern, Kansas City, Mo.

Railway Signal Association.—C. C. Rosenberg, Bethlehem, Pa.

Railway Storekeepers' Association.—J. P. Murphy, Box C, Collinwood, Ohio.

Railway Supply Manufacturers' Assoc.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.

Railway Tel. & Tel. Appliance Assoc.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

Richmond Railroad Club.—F. O. Robinson, Richmond, Va.; 2d Monday except June, July and August.

Roadmasters' and Maintenance of Way Association.—L. C. Ryan, C. & N. W., Sterling, Ill. Next convention, September 8-10, 1914, Chicago.

St. Louis Railway Club.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

Signal Appliance Association.—F. W. Edmonds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

Society of Railway Financial Officers.—C. Nyquist, La Salle St. Station, Chicago.

Southern Association of Car Service Officers.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

Southern & Southwestern Railway Club.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

Toledo Transportation Club.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

Track Supply Association.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

Traffic Club of Chicago.—W. H. Wharton, La Salle Hotel, Chicago.

Traffic Club of New York.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

Traffic Club of Pittsburgh.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

Traffic Club of St. Louis.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

Train Despatchers' Association of America.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next convention, June 16, Jacksonville, Fla.

Transportation Club of Buffalo.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

Transportation Club of Detroit.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

Traveling Engineers' Association.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Next meeting, Chicago.

Utah Society of Engineers.—Fred D. Ulmer, Oregon Short Line, Salt Lake City, Utah; 3d Friday of each month, except July and August.

Western Canada Railway Club.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

Western Railway Club.—J. W. Taylor, Karpen building, Chicago; 3d Tuesday of each month, except June, July and August.

Western Society of Engineers.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

# Traffic News

Officers of prominent express companies in New York City, commenting on a statement said to have been made at the Postoffice Department, in Washington, to the effect that the express companies had not suffered much from the parcel post during the Christmas season, declare that their package traffic has fallen off 20 per cent.

The Western Classification Committee has announced hearings on January 5 and on January 13, for the consideration of applications for changes in ratings, rules, etc., in Classification No. 52. Interested parties who cannot appear in person may present written arguments. The hearing on January 13 will be devoted to agricultural implements.

At the request of the contractor, the baggage contract between Albert Lindo and the Panama Railroad was terminated on November 17, when the railroad took over this branch of the business. It is now under the direct supervision of William E. Tragsdorf, general baggage agent. A number of changes looking to the improvement of the baggage service have already been instituted, and more will be made.

Because of the growing importance of the South as an originator of freight traffic, the Pennsylvania has established freight offices at Atlanta, Charlotte and Jacksonville. A Southern freight agent will be located in Atlanta, and district freight solicitors reporting to him will have their offices in Atlanta, Jacksonville and Charlotte. The representatives who will fill the newly-created positions are all men of Southern birth.

In preparation for handling the great volume of traffic in 1915, when the Panama-Pacific International Exposition is to be held in San Francisco, the Southern Pacific has ordered the construction of a new steel ferry steamer, the *San Mateo,* to run between San Francisco and Oakland. It will be a sister ship to the new ferry steamers *Alameda* and *Santa Clara,* now being built, and will cost approximately $500,000. The vessel will have a seating capacity of 1,845 passengers, and will be, with the *Alameda* and *Santa Clara,* one of the fastest ferry boats on San Francisco bay, making the trip in five minutes less time than is now required by other Southern Pacific boats.

Employees of the Baltimore & Ohio at Newark, Ohio, are circulating a petition to the Interstate Commerce Commission, asking that the application of the Eastern railroads for an increase in freight rates be granted. The petition is being circulated in business circles, shippers, merchants, jobbers, buyers, public officials, professional men and others, showing a willingness to sign it. Several hundred names have been affixed to the document. The petition is being circulated on the initiative of the railroad men themselves and has the endorsement of all classes of employees. It sets forth that the application of the railroads is believed to be wholly within reason, in view of the concessions made during recent years to employees, the higher cost of material and supplies and other items of expense having to be met. It also points out that both freight and passenger rates have been raised on foreign roads while during the same period in this country many of the rates have been reduced.

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### Car Surpluses and Shortages

Arthur Hale, chairman of the Committee on Relations Between Railroads, of the American Railway Association, in presenting statistical bulletin No. 157a, giving a summary of car surpluses and shortages by groups from August 29, 1912, to December 15, 1913, said:

The total surplus on December 15, 1913, was 107,513 cars; on December 1, 1913, 67,466 cars, and on December 14, 1912, 26,614 cars.

Compared with the preceding period there is an increase of 40,047 cars, of which 16,965 is in box, 1,627 in flat, 18,814 in coal and gondola, and 2,641 in miscellaneous car surplus. The increase in box car surplus is in groups 1 (New England Lines);

2 (New York, New Jersey, Delaware, Maryland and eastern Pennsylvania); 3 (Ohio, Indiana, Michigan and western Pennsylvania); 4 (the Virginias and Carolinas); 5 (Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida); 7 (Montana, Wyoming, Nebraska and the Dakotas); 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas); 9 (Texas, Louisiana and Mexico); 10 (Washington, Oregon, Idaho, California, Nevada and Arizona), and 11 (Canadian Lines). The increase in flat car surplus is in groups 1, 2, 3, 4, 7, 10 and 11 (as above) and 6 (Iowa, Illinois, Wisconsin and Minnesota). The increase in coal and gondola car surplus is in groups 1, 3, 5, 6 and 10 (as above). The increase in miscellaneous car surplus is in groups 1, 2, 3, 6, 10 and 11 (as above).

The total shortage on December 15, 1913, was 5,698 cars; on December 1, 1913, 10,212 cars, and on December 14, 1912, 61,006.

Compared with the preceding period; there is a decrease in the total car shortage of 4,244 cars, of which 960 is in box, 90 in flat, 2,800 in coal and gondola, and 394 in miscellaneous car shortage. The decrease in box car shortage is in groups 2, 4, 5, 8, 9, 10 and 11 (as above). The decrease in flat car shortage is in groups 1, 4 and 11 (as above). The decrease in coal and gondola car shortage is in groups 1, 2, 3, 4 and 5 (as above). The decrease in miscellaneous car shortage is in groups 1, 5, 6 and 11 (as above).

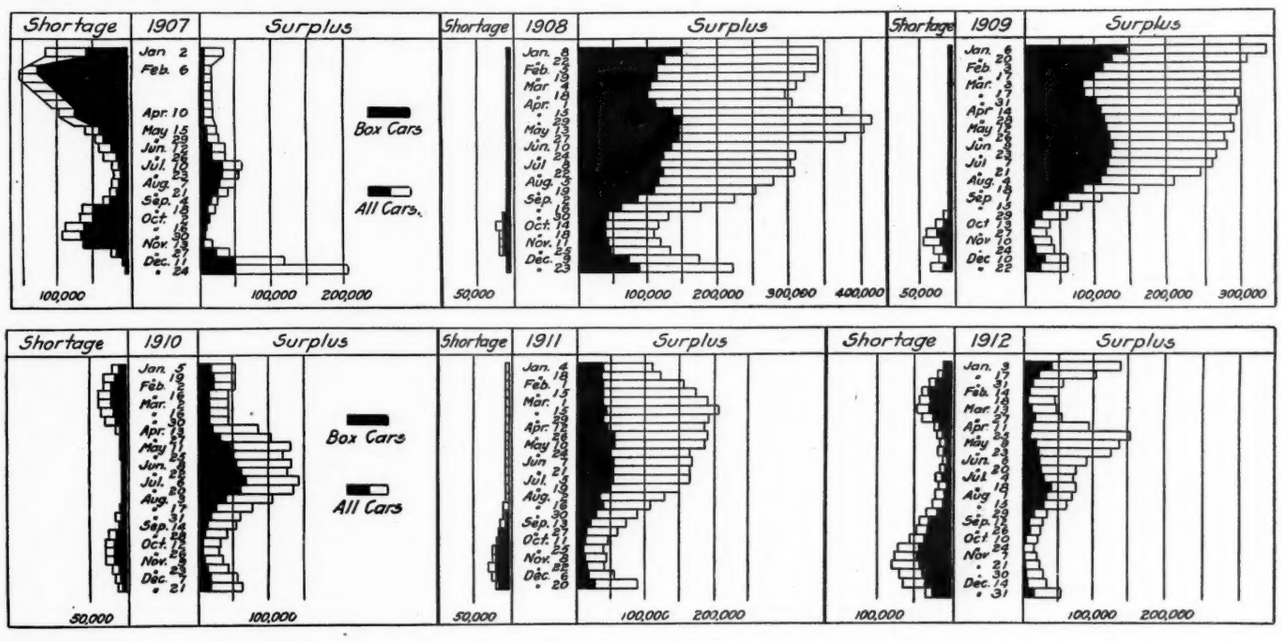
Compared with the corresponding period of 1912; there is an increase in the total car surplus of 80,899 cars, of which 37,443 is in box, 3,286 in flat, 29,833 in coal and gondola, and 10,337 in miscellaneous car surplus. There is a decrease in the total car shortage of 55,038 cars, of which 33,792 is in box, 3,405 in flat, 13,108 in coal and gondola, and 4,733 in miscellaneous car shortage.

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report and the diagram shows total bi-weekly surpluses and shortages from 1907 to 1913.

CAR SURPLUSES AND SHORTAGES.

| Date | No. of roads. | Surpluses: Box. | Flat. | Coal, gondola and hopper. | Other kinds. | Total. | Shortages: Box. | Flat. | Coal, gondola and hopper. | Other kinds. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group *1.—December 15, 1913 | 7 | 265 | 257 | 175 | 508 | 1,205 | 30 | 0 | 0 | 21 | 51 |
| " 2.— " 15, 1913 | 32 | 1,994 | 85 | 2,062 | 1,668 | 5,809 | 0 | 0 | 0 | 0 | 0 |
| " 3.— " 15, 1913 | 26 | 5,190 | 1,222 | 18,201 | 1,805 | 26,418 | 232 | 9 | 0 | 179 | 420 |
| " 4.— " 15, 1913 | 13 | 5,282 | 511 | 689 | 498 | 6,980 | 165 | 128 | 2,124 | 50 | 2,467 |
| " 5.— " 15, 1913 | 26 | 1,159 | 100 | 3,824 | 707 | 5,790 | 198 | 148 | 31 | 10 | 387 |
| " 6.— " 15, 1913 | 28 | 5,516 | 545 | 5,878 | 3,638 | 15,577 | 1,024 | 28 | 2 | 18 | 1,072 |
| " 7.— " 15, 1913 | 4 | 150 | 83 | 118 | 569 | 920 | 351 | 0 | 18 | 0 | 369 |
| " 8.— " 15, 1913 | 16 | 1,712 | 148 | 1,882 | 1,719 | 5,461 | 134 | 43 | 50 | 138 | 365 |
| " 9.— " 15, 1913 | 12 | 1,722 | 154 | 420 | 866 | 3,162 | 0 | 5 | 23 | 10 | 38 |
| " 10.— " 15, 1913 | 21 | 7,379 | 2,023 | 3,186 | 8,234 | 20,822 | 32 | 31 | 47 | 92 | 202 |
| " 11.— " 15, 1913 | 4 | 12,787 | 1,139 | 0 | 1,443 | 15,369 | 573 | 0 | 0 | 24 | 597 |
| Total | 189 | 43,156 | 6,267 | 36,435 | 21,655 | 107,513 | 2,739 | 392 | 2,295 | 542 | 5,968 |

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin and Minnesota lines; Group 7—Montana, Wyoming, Nebraska, North Dakota and South Dakota lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Washington, Oregon, Idaho, California, Nevada and Arizona lines; Group 11—Canadian lines.




Car Surpluses and Shortages, 1907 to 1913

### Some Cotton

Cars are cars as a general proposition, but the service rendered by cars in active operation depends entirely upon the manner in which their space contents are taken advantage of in actual loading. It is frequently the case that a 50-ton box car is used for loading a 20-ton consignment when a smaller capacity car was available and should have been used. C. B. & Q. 45264, a 50 ft. furniture car, was loaded on September 26 by the agent at Marble Falls with 94 bales of flat cotton—the record for the Sunset Central Lines for the cotton year so far.—*Sunset Central Bulletin.*

### Summary of Revenues and Expenses of Steam Roads

The Bureau of Railway Economics' summary of revenues and comments thereon for September, 1913, are as follows: The railways whose returns are included in this summary operate 224,537 miles of line, or about 90 per cent. of the steam railway mileage in the United States. The operating revenues for the month of October, 1913, amounted to $290,605,915. This includes revenues from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources connected with rail operation. Compared with October, 1912, the total operating revenues show a decrease of $1,516,225. The total operating revenues per mile of line averaged $1,294 in October, 1913, and $1,311 in October, 1912, a decrease of $17, or 1.3 per cent. Freight revenue per mile decreased 2.5 per cent., while passenger revenue per mile increased 1.2 per cent.

Operating expenses, which include all the costs of maintaining track and equipment, operating trains, securing traffic, and of administration, amounted to $195,338,456. This was $11,158,090 more than for October, 1912. These operating expenses per mile of line averaged $870 in October, 1913, and $827 in October, 1912, an increase of $43 per mile, or 5.3 per cent.

Net operating revenue, that is, total operating revenues less operating expenses, amounted to $95,267,459. This was $12,674,315 less than for October, 1912. Net operating revenue per mile of line averaged $424 in October, 1913, and $484 in October, 1912, a decrease of $60 per mile, or 12.4 per cent.

Taxes for the month of October amounted to $11,494,344, or $51 per mile, an increase of 11.7 per cent. over the month of October, 1912.

Operating income, which is net revenue from rail and outside operations, less taxes, averaged $373 per mile of line, and in October, 1912, $441, thus decreasing $68, or 15.4 per cent. Operating income for each mile of line for each day in October averaged $12.04, and for October, 1912, $14.23. Operating income is that proportion of their receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

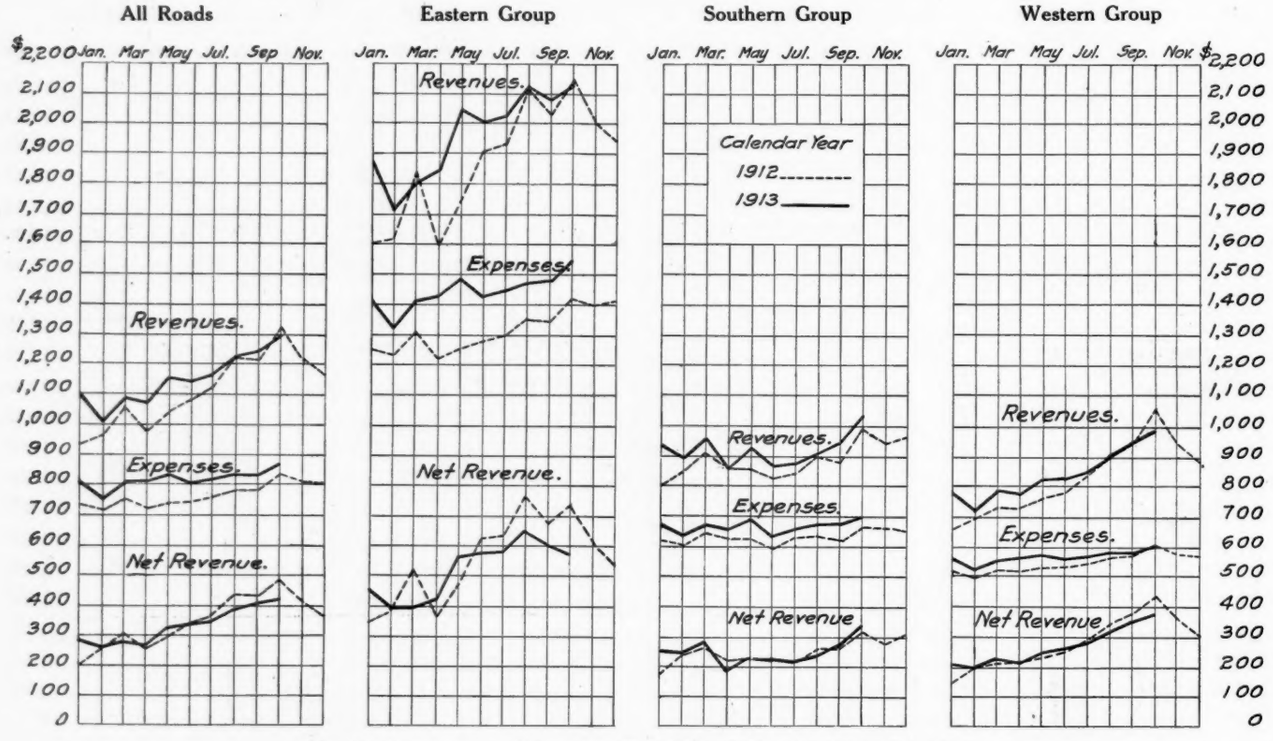
The operating ratio for October, that is, the per cent. of total operating revenues absorbed in operating expenses, was 67.2 per cent., which is comparable with 67.3 per cent. in September, 1913, and 63.0 per cent. in October, 1912.

The railways of the eastern district show a decrease in total operating revenues per mile of line as compared with October, 1912, of 0.5 per cent., the railways of the southern district an increase of 6.1 per cent., and the railways of the western district a decrease of 4.2 per cent. Operating expenses per mile increased 9.7 per cent. on the eastern railways, 6.1 per cent. on the southern railways, and 0.3 per cent. on the western railways. For the eastern railways net operating revenue per mile decreased 20.3 per cent., for the southern railways it increased 6.2 per cent., and for the western railways it decreased 10.6 per cent. Taxes per mile in the eastern district show an increase of 14.0 per cent., in the southern district an increase of 7.7 per cent., and in the western district an increase of 10.8 per cent. Operating income per mile decreased 25.4 per cent. in the East, increased 6.3 per cent. in the South, and decreased 12.7 per cent. in the West.

Comparison of the returns for the four months of the current fiscal year with those of the corresponding months of the previous fiscal year reveals an increase in total operating revenues per mile of 1.5 per cent., an increase in operating expenses per mile of 7.0 per cent., and a decrease in net operating revenue per mile of 8.7 per cent. This net operating revenue per mile of the eastern railways decreased 13.4 per cent. as compared with the corresponding period of the previous year, that of the southern railways increased 1.1 per cent., and that of the western railways decreased 6.5 per cent.

When the returns for the ten months of the calendar year 1913 are compared with those of the corresponding months of 1912, they show an increase in total operating revenues per mile of 5.5 per cent., an increase in operating expenses per mile of 8.7 per cent., and a decrease in net operating revenue per mile of 1.6 per cent. This net operating revenue per mile decreased 5.6 per cent. in the eastern district as compared with the corresponding period of the previous year, increased 4.0 per cent. in the southern district, and increased 0.9 per cent. in the western district.

The diagram shows the variations in operating revenues, operating expenses, and net operating revenue per mile for the separate months of the calendar year 1912 and of the calendar




**Monthly Revenues and Expenses Per Mile of Line in 1912 and 1913**

year 1913 to date. The following table shows the per cent. of operating revenues consumed by each class of expenses:

PER CENT. OF TOTAL OPERATING EXPENSES

| Account | October | | Calendar year ending December 31 | | Ten months ending October 31 | |
|---|---|---|---|---|---|---|
| | | | 1912 | 1911 | 1913 | 1912 |
| Maintenance of way and structures | 13.0 | 12.5 | 12.8 | 12.7 | 13.8 | 12.9 |
| Maintenance of equipment | 16.7 | 14.9 | 16.0 | 15.7 | 17.1 | 16.1 |
| Traffic expenses | 1.9 | 1.7 | 2.0 | 2.1 | 2.1 | 2.1 |
| Transportation expenses | 33.4 | 31.9 | 35.5 | 35.4 | 35.6 | 35.5 |
| General expenses | 2.2 | 2.0 | 2.4 | 2.5 | 2.5 | 2.4 |
| Total operating expenses (excluding outside operations and taxes) | 67.2 | 63.0 | 68.7 | 68.4 | 71.1 | 69.0 |

### Car Location

The accompanying table which was taken from bulletin No. 13 of the American Railway Association, gives a summary of freight car location by groups on December 1, 1913.

CAR LOCATION ON DECEMBER 1, 1913.

| | New England. | N.Y., N.J., Del., Md., Eastern Pa. | Ohio, Ind., Mich., Western Pa. | Va., W. Va., No. & So. Carolina. | Ky., Tenn., Miss., Ala., Ga., Fla. | Iowa, Ill., Wis., Minn. | Mont., Wyo., Neb., Dakotas. | Kans., Colo., Okla., Mo., Ark. | Texas, La., New Mexico. | Oregon, Idaho, Nev., Cal., Ariz. | Canadian Lines. | Grand Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Cars Owned | 87,939 | 694,260 | 280,668 | 199,377 | 172,840 | 491,621 | 20,286 | 154,477 | 31,450 | 137,176 | 147,616 | 2,417,710 |
| Home Cars on Home Roads | 39,726 | 371,027 | 91,817 | 100,911 | 82,901 | 326,176 | 7,902 | 78,334 | 14,338 | 74,233 | 97,076 | 1,284,441 |
| Home Cars on Foreign Roads | 48,213 | 323,233 | 188,851 | 98,466 | 89,939 | 165,445 | 12,384 | 76,143 | 17,112 | 62,943 | 50,540 | 1,133,269 |
| Foreign Cars on Home Roads | 56,702 | 305,696 | 215,342 | 89,790 | 80,300 | 179,923 | 11,922 | 79,001 | 34,683 | 58,840 | 43,067 | 1,155,266 |
| Total Cars on Line | 96,428 | 676,723 | 307,159 | 190,701 | 163,201 | 506,099 | 19,824 | 157,335 | 49,021 | 133,073 | 140,143 | 2,439,707 |
| Excess or Deficiency | 8,489 | *17,537 | 26,491 | *8,676 | *9,639 | 14,478 | *462 | 2,858 | 17,571 | *4,103 | *7,473 | 21,997 |
| Surplus | 546 | 7,139 | 3,192 | 5,026 | 4,050 | 12,835 | 2,045 | 5,309 | 3,323 | 18,221 | 5,780 | 67,466 |
| Shortage | 287 | 354 | 1,473 | 3,924 | 1,825 | 424 | 157 | 542 | 116 | 255 | 855 | 10,212 |
| Shop Cars— | | | | | | | | | | | | |
| Home Cars in Home Shops | 5,060 | 38,341 | 19,558 | 13,878 | 10,937 | 29,716 | 688 | 10,078 | 2,155 | 4,584 | 5,958 | 140,953 |
| Foreign Cars in Home Shops | 1,098 | 10,554 | 7,723 | 2,292 | 2,263 | 5,555 | 418 | 2,640 | 1,269 | 2,460 | 333 | 36,605 |
| Total Cars in Shops | 6,158 | 48,895 | 27,281 | 16,170 | 13,200 | 35,271 | 1,106 | 12,718 | 3,424 | 7,044 | 6,291 | 177,558 |
| Per Cent. to Total Cars Owned— | | | | | | | | | | | | |
| Home Cars on Home Roads | 45.17 | 53.44 | 32.71 | 50.61 | 47.96 | 66.35 | 38.95 | 50.71 | 45.59 | 54.12 | 65.76 | 53.13 |
| Total Cars on Line | 107.42 | 97.47 | 109.35 | 95.65 | 94.42 | 102.94 | 97.72 | 100.28 | 155.87 | 97.01 | 94.94 | 100.91 |
| Home Cars in Home Shops | 5.76 | 5.52 | 6.97 | 6.96 | 6.33 | 6.08 | 3.39 | 6.52 | 6.85 | 3.34 | 4.04 | 5.83 |
| Foreign Cars in Home Shops | 1.05 | 1.52 | 2.75 | 1.15 | 1.31 | 1.14 | 2.06 | 1.59 | 4.03 | 1.79 | .22 | 1.51 |
| Total Cars in Shops | 6.81 | 7.04 | 9.72 | 8.11 | 7.64 | 7.22 | 5.45 | 8.11 | 10.88 | 5.13 | 4.26 | 7.34 |

*Denotes deficiency.

### Suggestions to Local Freight Agents

[From the Frisco-Man.*]

A great deal has been said to you in the past few months in connection with the new agency plan, but I want to direct your particular attention to the fact that the freight traffic department depends exclusively on *you*—the local agent—for the solicitation at your station. Formerly our traveling freight agents made periodical visits to your stations, called on receivers and forwarders of freight—soliciting maximum haul on their consignments, and at the same time developing if they had any grievances in the way of unpaid claims, complaints against service, etc.; but under the new plan the agent is sole traffic representative at his station, and being constantly on the ground is in a position to be of greater assistance to them in every way. . . . Visit regularly all receivers and forwarders of freight, soliciting maximum haul on their in and outbound movements. . . . Be on the lookout for those improper rate adjustments that tend to place your station at a disadvantage as compared with your competitors. Bring such discrepancies immediately to the attention of this departments. . . .

All claims that instructions permit you to pay should be taken care of immediately. Others should be passed on the same day they reach you, and followed up consistently until paid or declined.

Successful solicitation is the culmination of an amiable personality on the part of the railroad representative and good service on the part of the company itself. Endeavor at all times to be unfailing and uniformly courteous to all our patrons. Do anything within the bounds of reason that will more securely cement their friendship. Try particularly hard to please in every way the exacting and unreasonable, of which there are a few in every community. Unfortunately they are the ones requiring the most attention. Failing to receive considerably more than any one else, they are the first to become disgruntled and turn their freight away from us. Even the worst of these, however, may be treated in a manner that will enable you to ingratiate yourself into their favor.

Don't neglect the smaller buyers; they have L. C. L. business and want and need good service—get their business and see that they get the service. . . . To sum up: sole responsibility for solicitation of freight is up to you; and we sincerely feel, judging from performances thus far, that you will make good. But the soliciting corps of all our competitors are persistently after every pound of freight to move to destinations reached by our lines and you can only secure the major portion of such traffic by likewise being persistent. . . . The advantage is with you, in that you are constantly on the ground; and you must not fail to follow it up.

If each one of you could be persuaded to take hold of this work with the same enthusiasm that some of our agents are manifesting, it would at once become an entire success. If the past few weeks may be taken as a criterion, it will not be a great while until our entire force of competitive agents are taking pardonable pride in the fact that they are securing more freight for their respective stations than is being received over the rails of their competitors. . . .

*Extracts from an article by J. A. Middleton, Freight Traffic Manager of the St. Louis & San Francisco.

## INTERSTATE COMMERCE COMMISSION

The commission has suspended from January 1 to May 1, a certain rule in tariffs of W. H. Hosmer, agent, providing for a rental charge of $5 per car per trip for a heated refrigerator or other insulated car. The rule relates to the carload movements of potatoes from producing points in Minnesota and Wisconsin during the winter season, and the lines primarily interested are the western trunk lines.

The commission has suspended to May 1 tariffs of the Atchison, Topeka & Santa Fe, the Chicago, Rock Island & Pacific, and certain other roads which proposed increases in rates on grain and grain products, in carloads, from Kansas City, Mo., and other points in Kansas, Nebraska, Oklahoma and Colorado to points in Louisiana. The present wheat rate from Kansas City, for example, to Morgan City, Iowa, is 30 cents per 100 lb. The proposed rate is 37 cents per 100 lb., an increase of 7 cents. The present corn rate between the same points is 28 cents per 100 lb. The proposed rate is 33 cents per 100 lb., an increase of 5 cents. Rates to and from other points are increased from 2 to 11.85 cents per 100 lb.

In conformance with the public resolution, approved June 30, 1906, and the sundry civil act, approved May 27, 1908, for which appropriation was made in an act approved October 22, 1913, the commission is authorized, at its discretion, to investigate and report on the use and need of any appliances intended to pro-

mote the safety of railway operation, which may be furnished in completed shape to it for such investigation entirely free of cost to the government. Any person desiring to submit an appliance should forward complete specifications and detailed in prints showing clearly the construction and method of operation of the appliance. Certain other specifications must also be followed. The plans, etc., will not be returned. It is not necessary to submit models. If they are sent, however, they will be returned if the owner so requests, but they must be sent at the owner's risk. Correspondence regarding this matter should be addressed to Interstate Commerce Commission, Safety Appliance Division, Washington, D. C.

### Complaint Dismissed

*Memphis Freight Bureau v. Baltimore & Ohio, et al. Opinion by the commission:*

Complaint is made that the defendants' rates for the transportation of imported burlap from New York, Boston, Philadelphia, Norfolk and Newport News to Memphis are unreasonable as compared with the rates on like traffic from the same ports to St. Louis, Mo. The commission finds that the rate of 38 cents to Memphis as compared to the rate of 22 cents to St. Louis does not result in undue prejudice against the former city. The circumstances and conditions surrounding the transportation to St. Louis and to Memphis are very dissimilar, and there is no evidence tending to prove that the rate to Memphis is unreasonable. (28 I. C. C., 543.)

*Alton Board of Trade v. Chicago & Alton et al. Opinion by Commissioner McChord:*

Complaint is made against the class rates from Alton, Ill., to Henderson and Owensboro, Ky., because they exceed those from East St. Louis to the same destination. It is contended that both of these originating points are similarly situated with respect to natural as well as commercial advantages, and that in reality Alton should be in the East St. Louis switching district. The commission finds that conditions at Alton and East St. Louis are not absolutely similar. Alton as related to the south is some distance beyond East St. Louis, and traffic for Henderson and Owensboro always necessitates the service of one, or sometimes two additional lines, to get it to East St. Louis. The commission also decides against an application of the Louisville & Nashville to be allowed to charge higher rates to Henderson and Owensboro from Alton than from Alton and East St. Louis to Louisville. (28 I. C. C., 589.)

## STATE COMMISSIONS

George W. Bellamy has resigned as chairman of the Arkansas Railroad Commission, but remains a member of the commission. Commissioner W. F. McKnight has been made chairman.

James E. Quan, a wholesale grocer of Chicago, and Walter A. Shaw, civil engineer, also of Chicago, have been appointed members of the Illinois Public Utilities Commission, the new body which on January first succeeded the state railroad and warehouse commission. One more member is yet to be appointed.

The Illinois Railroad and Warehouse Commission has held several conferences with representatives of the express companies and shippers, with a view to establishing state express rates as near uniform as possible with the system of rates prescribed by the Interstate Commerce Commission.

The Pennsylvania Public Service Commission entered upon its full powers on January 1, and will complete its organization of bureaus without delay. Thus far the commission's powers have been restricted mainly to the disposition of complaints handed over by the State Railroad Commission, which it succeeded, and approval of contracts between municipalities and public service companies. The accident division is already organized and is in charge of J. P. Dohoney, who is preparing a report showing the location of every grade crossing. Accidents of an "industrial" character, such as occur in roundhouses, car shops and the like will be reported to the bureau of statistics of the department of labor and industry, which is a branch of the government separate from the public service commission.

## COURT NEWS

Attorney-General Barker of Missouri has filed suits against several of the principal roads of the state for the recovery of amounts collected by them in passenger fares and freight bills in excess of the rates finally sustained by the order of the Supreme Court in the Missouri rate cases, during the pendency of the suits. He has announced that such suits will be filed against all of the thirteen roads involved as fast as they can be prepared. The attorney-general estimates the total of overcharges at from $15,000,000 to $18,000,000, but has set the figure at $2,000,000 for each road in the suits, pending a definite accounting.

Judge Sanborn at St. Louis on December 26 directed the receivers of the St. Louis & San Francisco to file suits against former directors and officers of the company for the restitution of profits gained in the sale of subsidiary lines to the Frisco, provided the special counsel appointed by the court shall believe such suits can be successfully maintained. The court appointed as special counsel for the receivers, John D. Johnson and Loomis Johnson, who were counsel for W. W. Niles, a stockholder who had previously asked permission to file such suits on behalf of the stockholders. The court held a hearing on December 22, on the question as to whether the suits should be filed by the receivers or by the stockholders.

Railway Construction in Chili.—Last June the mileage of railway under construction in Chili amounted to 1,850, the total approximate cost being computed at about $65,000,000.

Freight Car Shortage in Japan.—At the present time Japan is suffering from a shortage of freight cars on the government railroads. The reason is probably to be found in the fact that the traffic has increased much faster than the amount of rolling stock. There are also other aggravating features. For example, in one district there were frequent railway interruptions because of a flood. In a second district there was an industrial exhibition which added a large amount of traffic. In the northeastern regions the rice crop failed and a large number of cars had to be used to transport rice from other portions of Japan to that region. It is said that in the Kobe railway division 50,000 tons of freight are received daily for transportation, but that the carrying capacity on hand amounts to but 2,500 tons. The railway board is now making new cars to fill the want.

Rates of Fare on Copenhagen Street Car Lines.—In Copenhagen the uniform fare for a street car ride is about 2¾ cents, including transfer privileges, which are very liberal. Passengers can change to cars running in both the same and opposite directions, but only on the line belonging to the company issuing the transfer. There are at the present time three of these companies. Most of the lines also have shorter zones where the rate is but 1⅜ cents. That rate, however, carries with it no transfer privileges. Children under five years of age can ride free when they are carried on the lap of a fare paying passenger. Two children under 12 years of age are carried on a single full fare ticket. School tickets are issued to children under 15 years of age at the rate of 67 cents per month for a single line and 80 cents per month for several lines. The method of fare collection is worthy of note, the passengers being supplied with tickets which are retained and shown on demand during the trip.

A Robert's American Track Laying Machine in Australia.—A short while ago a Robert's track laying machine was used for the first time in Australia. A trial was made in the construction of the East-to-West Transcontinental Railway, which is to connect Western Australia with the railway service of the eastern states. The first trial was reported as satisfactory, except that some inconvenience was experienced because some of the Australian plates were badly joined. Forty-two men worked on the machine, half with the train and half behind it. It took them three and one-half hours to lay a half-mile of track and the follow-on spikers had fixed the rails in another hour. Work had to be discontinued as soon as the half mile was laid, because of a lack of rolling stock and locomotives. The half mile laid, however, shows what the track layer can accomplish. It is hoped to lay the rails on the East-to-West line at the rate of two miles a day. Many believe that that cannot be accomplished, however, because of construction work and bridges. The machine, itself, if properly supplied, can lay at least one mile a day.

# Railway Officers

### Executive, Financial and Legal Officers

W. H. Emerson, acting freight claim agent of the Chicago & Eastern Illinois, with office at Chicago, has been appointed freight claim agent.

W. C. Hurst, general superintendent of the eastern district of the Pere Marquette at Saginaw, Mich., has resigned to become vice-president and general manager of the Chicago, Peoria & St. Louis, with headquarters at Springfield, Ill.

L. A. Lambert, special accountant of the Baltimore & Ohio, has been appointed to the new position of auditor of miscellaneous receipts and accounts, and J. P. O'Malley, chief clerk to the auditor of merchandise receipts, becomes assistant auditor of that department. This is also a new position.

Joseph Davis Greene, auditor of disbursements of the Pennsylvania Railroad, at Philadelphia, Pa., was retired under the pension rules of the company on December 31. He was born at Greens' Mills, Hocking county, Ohio, on December 7, 1843, and was educated at Friends' Central School and at the Quaker City Business College, Philadelphia, Pa. He entered the service of the Pennsylvania Railroad on August 21, 1865, as a clerk in the office of the auditor of disbursements, and on June 1, 1873, was made chief clerk to the controller. From January 1, 1875, to the following June, he was chief clerk in the office of the auditor of disbursements and then was made assistant auditor of disbursements, becoming auditor of disbursements on January 1, 1892. His entire service has been with the Pennsylvania Railroad.

John Sebastian, third vice-president in charge of passenger traffic of the Chicago, Rock Island & Pacific, with office at Chicago, retired on January 1 on account of ill health. Mr. Sebastian was born January 28, 1849, at Newport, Ky., and began railway work in 1869. He was with the Atchison, Topeka & Santa Fe until 1880, for the first three years clerk in the general ticket office, then for seven years chief clerk in the general passenger and ticket agent's office, and one year as traveling agent. He went with the Chicago, Rock Island & Pacific as general southwestern passenger agent in 1880, and seven years later was promoted to general ticket and passenger agent of the Chicago, Kansas & Nebraska division, which office he held for two years. He was then made general passenger and ticket agent of the road, and from July, 1902, to January of the following year he was passenger traffic manager. For seven years from January, 1903, he was passenger traffic manager of the entire Rock Island system, including the Chicago, Rock Island & Pacific, the Choctaw, Oklahoma & Gulf, and the St. Louis, Kansas City & Colorado. For four years from February, 1906, he was also passenger traffic manager of the St. Louis & San Francisco and the Chicago & Eastern Illinois. For eight months in 1909 he was passenger traffic manager of the Colorado Southern, New Orleans & Pacific, and from December 1, 1909, until the present time he has been third vice-president of the Chicago, Rock Island & Pacific, in charge of passenger traffic.

J.Sebastian

John R. Kenly, who has been elected president of the Atlantic Coast Line, as has already been announced in these columns, was born on January 21, 1847, at Baltimore, Md., and began railway work in July, 1868, with the Pittsburgh & Connellsville, now a part of the Baltimore & Ohio, and until 1871 he was resident engineer of construction on that road. He was then resident engineer of construction on the Union Railroad tunnel at Baltimore, Md., until his appointment in August, 1873, as engineer and roadmaster of the Union Railroad of Baltimore. From November, 1876, to April, 1882, he was engineer and superintendent of the same road. He was appointed superintendent of the Richmond & Petersburg, now a part of the Atlantic Coast Line, on April 5, 1882, and on January 1, 1885, became superintendent of transportation of the Atlantic Coast Line. Four years later he was promoted to assistant general manager, and from July 1, 1891, to November, 1902, he was general manager. In November, 1902, he became fourth vice-president and general manager, then from April to November 21, 1905, was fourth vice-president, and since that time was third vice-president until his recent election as president of the same road.

### Operating Officers

W. A. McGovern has been appointed assistant superintendent of the Idaho division of the Oregon Short Line.

C. L. Hinkle, superintendent of the Toledo, St. Louis & Western, has been appointed general superintendent, with office at Frankfort, Ind.

W. H. Andrews, superintendent of the Georgetown & Western, at Georgetown, S. C., has been appointed general manager, and J. A. Emmart succeeds Mr. Andrews, as superintendent.

A. C. Elston, general agent of the Erie, at Chicago, has been appointed superintendent of the New York division, with headquarters at Jersey City, N. J., succeding J. B. Dickson, promoted.

George F. Turley, trainmaster of the Norfolk & Western at Portsmouth, Ohio, has been appointed general manager of the Virginia-Carolina, and the New River, Holston & Western, with headquarters at Abingdon, Va.

The office of C. E. Ocheltree, assistant superintendent of the Wabash, has been transferred from Decatur, Ill., to Forrest, and he has also taken over the duties of trainmaster on the sixth, seventh and eighth districts, succeeding William Walmsley, assigned to other service.

F. R. Bartles, trainmaster of the Northern Pacific at Pasco, Wash., has been appointed superintendent of the Fargo division, with headquarters at Dilworth, Minn., succeeding T. W. Lowry, transferred to the Minnesota division, Staples, Minn., succeeding A. J. Sovereign, granted indefinite leave of absence after 35 years' continuous service.

E. R. Scoville, superintendent of the Ohio division of the Baltimore & Ohio Southwestern, at Chillicothe, Ohio, has been appointed a member of the newly-organized General Safety Committee, and J. D. Stack, assistant superintendent of the Toledo division of the Cincinnati, Hamilton & Dayton, with headquarters at Dayton, Ohio, has been promoted to superintendent, succeeding Mr. Scoville.

T. E. Coyle, whose appointment as superintendent of the Pasco division of the Northern Pacific, with office at Pasco, Wash., effective January 1, has been announced in these columns, was born at Port Alleghany, Pa., October 17, 1873. He received a public school education, and spent one year taking a technical course in a college at Belfont, Pa. In 1891 he began railway work with the Erie as a telegraph operator, and a year later went to the Buffalo, Rochester & Pittsburgh. In 1893 he went to Tacoma and began work as a telegraph operator with the Northern Pacific, with which company he has been ever since. He was successively promoted to agent, train despatcher, chief despatcher, trainmaster and assistant superintendent. At the time of his recent promotion he was assistant superintendent at Tacoma, Wash.

William Ayer Baldwin, whose appointment as assistant general superintendent of the Erie grand division of the Erie, with headquarters at New York, has been announced in these columns, was born at Elmira, N. Y., and was educated at Cornell University. He began railway work in September, 1896, in the engineering department of the Erie, and from May, 1899, to April, 1909, was consecutively rodman, assistant engineer and division engineer on various divisions of the Erie. He then en-

tered the operating department of the same road as trainmaster on the Cincinnati division. On December 1, 1910, he was made superintendent of the Chicago & Lima division, and in May, 1912, became superintendent of the Delaware and Jefferson divisions, at Susquehanna, Pa., which position he held at the time of his recent appointment as assistant general superintendent of the Erie grand division, of the same road, as above noted.

Arthur Bointon Shafer, whose appointment as superintendent of the New York, Susquehanna & Western and the Wilkesbarre & Eastern, with headquarters at Jersey City, N. J., has been announced in these columns, was born on April 19, 1871, at Milford, N. J. He learned telegraphy while serving on the Pennsylvania Railroad, and was made an extra operator in June, 1887. In January, 1889, he went to the Lehigh Valley as operator at Wilkesbarre, Pa., and left that company in May, 1890, to go to the Lehigh & Hudson as agent at Franklin Junction, N. J. In October, 1890, he became operator at Canaan, Conn., on the Central New England & Western, now a part of the Central New England, and in March, 1891, went to the New York & New England, now a part of the New York, New Haven & Hartford, as an extra operator, and in August, 1892, returned to the service of the Lehigh & Hudson. He was appointed agent in June, 1894, of the Wilkesbarre & Eastern at Clifton, Pa., and the following October, was made despatcher's operator on the New York, Susquehanna & Western, becoming despatcher in March, 1895. He was promoted to chief despatcher in September, 1904, and in March, 1906, was made trainmaster of the Wilkesbarre & Eastern, becoming assistant superintendent of the New York, Susquehanna & Western and the Wilkesbarre & Eastern in April, 1913, which position he held at the time of his recent appointment as superintendent of the same roads, as above noted.

A. B. Shafer

Frederic Bowen Lincoln, whose appointment as general superintendent of the Erie grand division of the Erie, with office at New York City, has been announced in these columns, was born in October, 1867, at New York, and was educated in the public schools and at New York University. He began railway work on May 20, 1887, in the engineering department of the Erie, and to June, 1892, was consecutively rodman, transitman and assistant engineer. He was then, for over three years, assistant engineer of the Allegany and Susquehanna divisions, and from November, 1895, to May, 1897, was trainmaster of the Toby branch, in charge of maintenance and operation of the same road. In May, 1897, he became agent of the Erie at Salamanca, N. Y., and from December, 1898, to March, 1902, was superintendent of the Tioga division of the same road and superintendent of the Blossburg Coal Company. He was then, to October, 1903, general manager of the Buffalo & Susquehanna Coal & Coke Company, and from October, 1903, to the following February was special agent for the vice-president and general manager of the Erie. In February, 1904, he was appointed superintendent of the Susquehanna division of the Delaware & Hudson, remaining in that position until August, 1905, then for a short time he was superintendent of construction of the Delaware & Eastern. From October, 1905, to March, 1906, he was superintendent of construction of the O'Rourke Engineering Construction Company, New York, engaged on the New York Central & Hudson River terminal work, at Forty-second street, New York. On March 15, 1906, he became assistant to the receiver of the Pittsburg, Shawmut & Northern, which position he held at the time of his recent appointment as general superintendent of the Erie, as above noted.

F. B. Lincoln

Robert Stevens Parsons, who has been appointed general manager of the Ohio grand division of the Erie, with headquarters at Cleveland, Ohio, as has been announced in these columns, was born at Hohokus, N. J., and was educated at Rutgers College. He began railway work in 1895, as rodman on the Erie; the following year he was made assistant engineer, and in 1899, became division engineer of the New York, Susquehanna & Western. In 1903 he was appointed engineer of maintenance of way of the Erie, and three years later became assistant general superintendent of the same road. He was promoted to superintendent of the Susquehanna division in 1907, and three years later was transferred in the same capacity to the New York division. On January 1, 1913, he was appointed assistant general manager of the lines east of Buffalo, N. Y., and Salamanca, with headquarters at New York, which position he held at the time of his recent appointment as general manager of the Ohio grand division of the same road, as above noted. Mr. Parsons has been a member of the American Society of Civil Engineers since 1900.

### Traffic Officers

H. F. Bell has been appointed commercial agent of the Southern Railway, with headquarters at Oklahoma City, Okla.

Roger P. Hurley has been appointed general agent, traffic department, of the Toledo, St. Louis & Western, at Detroit, Mich.

George W. Smith, export agent of the Pennsylvania Lines West at Chicago, has had his title changed to foreign freight agent.

George H. Wilcox, assistant general freight agent of the Georgia Southern & Florida at Macon, Ga., has had his authority extended over the Hawkinsville & Florida Southern and the Macon & Birmingham, with headquarters at Macon, Ga.

L. C. Gaty, general auditor of the Jonesboro, Lake City & Eastern, has been appointed also general freight and passenger agent, with headquarters at Jonesboro, Ark., succeeding H. M. Gregory, resigned to take service with the Arkansas Railroad Commission.

J. T. Conley, assistant general freight agent of the Chicago, Milwaukee & St. Paul, with office at Minneapolis, Minn., has been appointed general freight agent, with office at Chicago, succeeding W. E. Prendergast, resigned to become a member of the Western Classification Committee. F. E. Otis, commercial agent at St. Paul, has been appointed assistant general freight agent at Minneapolis, succeeding Mr. Conley.

W. B. Groseclose has resigned as assistant freight traffic manager of the Missouri, Kansas & Texas, with office at Chicago, and the office is abolished, effective January 1. W. W. Miller, assistant general freight agent, has been appointed general freight agent, with office at St. Louis, succeeding J. W. Allen. R. D. Williams, chief clerk in the general freight office at St. Louis, has been appointed assistant general freight agent at St. Louis, and J. W. Allen has been appointed general agent, freight department, at St. Louis.

W. A. Rambach, assistant general freight agent of the Missouri Pacific-Iron Mountain system at St. Louis, Mo., has been promoted to assistant to vice-president in charge of traffic of the Missouri Pacific-Iron Mountain System, the Denver & Rio Grande, and the Western Pacific, with headquarters at Chicago, succeeding E. B. Boyd, resigned. W. H. Alexander, chief

clerk of the tariff bureau, succeeds Mr. Rambach, and J. F. Harris, chief clerk to the general freight agent of the St. Louis, Iron Mountain & Southern, has been appointed assistant general freight agent at St. Louis, a new position.

Walter S. Franklin, Jr., freight soliciting agent of the Pennsylvania Railroad, at Pittsburgh, Pa., has been appointed soliciting freight agent with headquarters at Atlanta, Ga. W. R. O'Hara, freight solicitor at Baltimore, Md., has been appointed district freight solicitor at Jacksonville, Fla. R Alan Turner, freight solicitor at New York, has been appointed district freight solicitor at Charlotte, N. C. J. T. Wray, freight solicitor of the Union Line at Atlanta, has been appointed district freight solicitor, and J. G. Parnell, freight solicitor at Atlanta, has been appointed traveling freight solicitor, both with headquarters at Atlanta. These are all new agencies. George Ashbridge, Jr., freight solicitor at Toronto, Ont., has been appointed freight solicitor with headquarters at New York, succeeding Mr. Turner.

#### Engineering and Rolling Stock Officers

S. S. Arentz has resigned as chief engineer of construction of the Salt Lake & Utah, at Salt Lake City, effective February 1.

L. S. Rose, signal engineer of the Cleveland, Cincinnati, Chicago & St. Louis, with office at Cincinnati, O., has been appointed engineer of valuation.

H. C. Williams, assistant chief engineer of construction of the Louisville & Nashville, at Louisville, Ky., has been appointed chief engineer of construction, with headquarters at Louisville, succeeding J. H. Peyton, who goes to another company.

W. J. Eddy, inspector of tools and machinery of the Chicago, Rock Island & Pacific, at Chicago, Ill., has been appointed master mechanic at El Dorado, Ark., vice R. C. Hyde, transferred to Manly, Ia. F. W. Williams, master mechanic at Manly, has resigned.

#### Purchasing Officers

M. Merryman has been appointed general storekeeper of the Western Maryland, with office at Hagerstown, Md.

#### Special Officers

John E. Owens, chief surgeon of the Chicago & North Western, has been appointed consulting surgeon, and C. W. Hopkins, assistant chief surgeon, has been appointed chief surgeon to succeed him.

The Chicago, Burlington & Quincy has organized a valuation committee. The committee consists of A. W. Newton, general inspector of permanent way and structures, chairman; E. A. Howard, real estate and industrial commissioner; J. D. Shields, auditor of expenditures; E. M. Shelton, assistant general counsel, and E. J. Robinson, valuation engineer.

## OBITUARY

Michael Sweeney, formerly vice-president and general manager of the Trinity & Brazos Valley, died on December 22, at his home in Houston, Tex. He was born on September 29, 1849, in Ireland, and began railway work in September, 1872, as a clerk in the auditor's office of the Missouri, Kansas & Texas. He was subsequently in the service of the St. Louis, Iron Mountain & Southern, and the Richmond & Allegheny. From October, 1887, to December of the following year he was general superintendent of the Kanawha & Ohio, and then was superintendent of transportation of the Missouri, Kansas & Texas system at Parsons, Kan., becoming general superintendent of the same road in May, 1897. He left the M. K. & T. in 1902, and then to 1905, was general superintendent of the Minneapolis & St. Louis and the Iowa Central. He was elected vice-president and general manager of the Trinity & Brazos Valley in February, 1905, resigning from that position in March, 1907, to engage in the coal business.

FROM BUENOS AIRES TO ASUNCION.—Through train service from Buenos Aires to Asuncion is now in operation. There is but one train a week, and the run requires 49½ hours. This compares with the five or six day trip by steamer.

# Equipment and Supplies

## LOCOMOTIVE BUILDING

THE MINNEAPCLIS, ST. PAUL, ROCHESTER & DUBUQUE TRACTION, Minneapolis, Minn., has ordered three type 400 gas-electric locomotives from the General Electric Company.

THE AMERICAN RAILROAD OF PORTO RICO has ordered four compound consolidation locomotives from the American Locomotive Company. These locomotives will have 14 and 20 by 20 in. cylinders, 37 in. driving wheels and a total weight in working order of 83,000 lb. The steam pressure will be 213 lb.

THE INTERCOLONIAL, reported in an unconfirmed item in the *Railway Age Gazette* of December 19, as having ordered six consolidation and five switching locomotives from the Canadian Locomotive Company, placed orders for but six consolidation and five switching locomotives with that company.

## CAR BUILDING

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 10 passenger cars.

THE GRAND TRUNK has ordered 500 flat cars from the Pressed Steel Car Company.

THE MINNESOTA NORTHWEST has ordered one type RE-70B-11 gas-electric car from the General Electric Company.

THE NEW YORK, ONTARIO & WESTERN has ordered 12 passenger cars from the American Car & Foundry Company.

THE MINNEAPOLIS, ST. PAUL, ROCHESTER & DUBUQUE TRACTION, Minneapolis, Minn., has ordered three type RE-70B-11 gas-electric cars from the General Electric Company.

THE CHICAGO ELEVATED RAILWAYS have ordered 120 elevated car bodies from the Cincinnati Car Company. These cars are to be supplied with Baldwin trucks.

## SIGNALING

The Federal Signal Company has taken the contract to instal a 24-lever mechanical interlocking plant on the Louisville & Nashville at Lewisburg, Tenn.

The signal department of the Baltimore & Ohio reports that about $1,000,000 has been expended in extensions and improvements during 1913. This brings the total cost of the signal apparatus on the Baltimore & Ohio lines up to about $5,000,000.

HARBOR WORK AT DAIREN IN MANCHURIA.—The South Manchuria plans to spend $1,500,000 on harbor construction during the fiscal year ending February, 1915. The chief work will be the reclamation of the shore front at the east of the east quay, construction of the northeast breakwater, reconstruction of the quay wall on the west side of the main quay, and the construction of a new third quay to the west of the main quay. It is also reported that the railroad plans to construct a new coal shed at the Dairen wharves at an estimated cost of $350,000. The pier will be modeled after the Brown hoist system. The coming budget of the railway will include an outlay for the purchase of part of the material and the machinery needed. The continued increase of Fushun coal shipments from the port necessitates the improvement of the facilities for loading, the current demand for the product severely taxing at times the ordinary methods in use. Shipments of Fushun coal now total nearly 1,000,000 tons a year. The South Manchuria has already spent no less than $4,300,000 on its harbor work at Dairen, and the improvements already effected bid fair to make the port one of the finest in the Far East, especially as to the facilities for handling both incoming and outgoing cargoes.

# Supply Trade News

The Ross Wortham Company, McCormick building, Chicago, will, on and after January 1, have the exclusive sales agency of the Garland car ventilator and all other Garland devices.

Ernst Wiener, for some years president of the Ernst Wiener Company, of New York City, has opened an office at 45 West Wilhelm street, Berlin, Germany, to represent American manufacturers in Europe.

George W. Bender, who has been general manager of Mudge & Co., in charge of the manufacturing department, will also, effective January 1, have full charge of the sales department, Robert M. Smith, general sales manager, having resigned and this position having been abolished.

### Franklin Railway Supply Company

The Franklin Railway Supply Company, New York, because of growth in business has been compelled to enlarge and reorganize its sale department. Walter H. Coyle has been elected second vice-president in charge of sales. William L. Allison will remain in charge of the company's office at Chicago as western sales manager. J. H. Steiger will continue in charge of sales on the Pacific coast, with office in San Francisco, as will also Pedro M. Armendariz in charge of sales in Mexico with office in Mexico City. Ralph G. Coburn has been promoted to eastern sales manager, and Alan Lichtenhein to Canadian sales manager, both with offices at 30 Church street, New York.

Walter H. Coyle

Walter H. Coyle was born at Salamanca, N. Y., December 27, 1878. Four years later his family removed to Meadville, Pa., and Mr. Coyle was educated in the public schools of that place. After leaving school he was for 11 years in the service of the Erie Railroad in various capacities in the mechanical and traffic departments. In January, 1905, he became identified with the Kent Manufacturing Company, Kent, Ohio, and in June of the same year entered the mechanical department of the Franklin Railway Supply Company, with headquarters at Franklin, Pa. In June, 1911, he was made assistant to the vice-president, with headquarters at New York, and was placed in charge of the sales department of the central territory, which position he held until his election as second vice-president, as noted above.

Ralph G. Coburn

Ralph G. Coburn, who has been appointed eastern sales manager, with headquarters at New York, was born at Boston in 1882. He graduated from Harvard in 1904, and entered the service of the American Glue Company. He remained with that company about four years, being in charge of its western factories and having his headquarters at Des Moines, Iowa, and Chicago. On May 1, 1909, he opened the Chicago office of the Franklin Railway Supply Company as resident sales manager. On June 1, 1911, he was made assistant to the vice-president, in charge of eastern-southern territory, with headquarters at New York, which position he held until his appointment as eastern sales manager.

Alan Lichtenhein

Alan Lichtenhein was born May 24, 1887, and is a graduate of both Williams College and the Harvard Law School. Upon the death of his father, who for many years occupied a very prominent position in the Canadian railway supply field, he entered the service of the Franklin Railway Supply Company in Canada, and now succeeds to his father's position in charge of Canadian sales of that company.

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E. L. Adreon, Southwestern Manager of the Westinghouse Air Brake Company and the Westinghouse Traction Brake Company, died suddenly in St. Louis, Mo., on Monday last.

The Curtain Supply Company, Chicago, has received an order for Pullman type diaphragms for the last 80 general service Pullman sleepers and for the last 14 general service Pullman parlor cars built by the Pullman Company.

The selling business of the Gorham Engineering Company, San Francisco, Cal., will hereafter be carried on by the newly incorporated Gorham Fire Apparatus Company. This firm is the distributor for the Pyrene Manufacturing Company, makers of the Pyrene fire extinguisher, on the Pacific coast, and has offices in Los Angeles, San Francisco and Seattle.

Mudge & Co. announce the termination, effective January 1, of the contract for the manufacture and sale of Garland ventilators and other Garland devices. Thomas H. Garland has resigned as vice-president of Mudge & Co., and will devote his time to the manufacture, sale and improvement of the Garland ventilator as well as the other devices of which he is the inventor.

The Curtain Supply Company, Chicago, has furnished the following equipment for the 150 passenger cars recently ordered by the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha: fireproof diaphragms, with Rex opening pleat, Rex vestibule curtains, with opening shields, Ring 88 curtain fixtures on 20 observation, dining and parlor cars and Rex friction rollers on 48 coaches, 6 chair cars and 32 smoking cars.

At a meeting of the board of directors of the Union Switch & Signal Company, on December 22, it was voted to call a special meeting of the stockholders, to be held on March 10, for the purpose of voting for or against an increase in the capital stock of the company to $10,000,000. The increased stock is to be common stock, and it is the intention of the board to declare a stock dividend of 33⅓ per cent. as soon as the necessary action can be taken.

The Signal Accessories Company, of 30 Church street, New York, and the W. F. Bossert Manufacturing Company, Utica, N. Y., are now operating as one company, under the name of the Signal Accessories Company, Inc., with main office and works at Utica, N. Y., and sales department at 30 Church street, New York. The officers of this company are W. F. Bossert, presi-

dent; F. C. Lavarack, vice-president and general sales manager; F. L. Guillaume, treasurer; D. E. Phillips, assistant treasurer, and W. H. Roberts, secretary.

### American Arch Company

At the annual meeting of the directors of the American Arch Company, John P. Neff and William L. Allison were elected vice-presidents.

Mr. Neff was born at La Fontaine, Ind., May 2, 1874. In 1895 he was graduated from the mechanical engineering department of Purdue University and entered the service of the Chicago & North Western as a special apprentice. During the greater part of his special apprenticeship he was in charge of the locomotive testing plant where a very considerable amount of research work was being carried on. Following this he served as a machinist; assistant roundhouse foreman at Chicago; division foreman of the motive power department at Waseca, Minn., October, 1899, to May, 1901; master mechanic at Huron, S. D., May, 1901, to September, 1902; master mechanic of the Western Iowa division, with headquarters at Boone, Iowa, September, 1902, to July, 1904. In 1904 he left railroad service to take a position as engineer of tests of the American Locomotive Equipment Company. In 1906 he was made mechanical engineer of that company, and succeded to a similar position with the American Arch Company when it was formed in 1910. In March, 1912, he was made assistant to the president of the American Arch Company, which position he held until his recent election as vice-president.

J. P. Neff

W. L. Allison

William Locke Allison was born near Salisbury, N. C., March 20, 1876. He was educated at the Davis Military School, Winston-Salem, N. C., and received a United States Military Academy appointment, but did not graduate. He entered the government service as United States deputy marshal, which position he held for three and a half years. From March, 1898, to January, 1904, he was employed by the Baldwin Locomotive Works in various capacities, the last year of his service with that company being as engineer of tests. From January, 1904, to August, 1909, he was mechanical engineer of the Atchison, Topeka & Santa Fe, with headquarters at Chicago. In 1909 he became identified with the Franklin Railway Supply Company, and for two years was mechanical manager, with office at New York. Since that time he has been western sales manager, with office at Chicago, and has also been western sales manager of the Rome Merchant Iron Mills and the Economy Devices Corporation, and general western sales manager of the American Arch Company.

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John Daniel Taylor, the inventor of "all-electric" interlocking switch and signal apparatus, died on December 16. For the last nine years Mr. Taylor had been with the Union Switch & Signal Company at Swissvale. He was born March 22, 1861, in Piketon, Pike county, Ohio. He graduated from the high school in that place when he was about 17 years old. In or about 1893 he organized a company in Chillicothe, Ohio, and built there his first two all-electric interlockings in the shops of the Baltimore & Ohio. One of these is installed at East Norwood, Ohio, at the crossing of the Baltimore & Ohio South Western and the Cincinnati Northern. In 1899 the Taylor Switch & Signal Company was incorporated in Buffalo, N. Y. That company was later consolidated with the Pneumatic Signal Company of Buffalo, and became the General Railway Signal Company, now at Rochester, N. Y. In 1904 Mr. Taylor entered the employ of the Union Switch & Signal Company, and was immediately assigned the task of developing the A. C. indication electric interlocking system. He also had a hand in the development of the multiple unit type of electric interlocking, the Taylor centrifugal relay, the style *T* signal, and various other types of electrical apparatus.

The Railroad Water & Coal Handling Company was organized on January 1, 1914, with M. D. Miller, president; T. S. Leake, vice-president, and W. F. Leake, secretary and treasurer. Mr. Miller is well known among railway engineers, having been engaged in railway water service operation for 26 years. From 1887 to 1903 he was division and general foreman of water service on the Atchison, Topeka & Santa Fe. In 1903-04 he was in charge of water service on the Illinois Central and Yazoo & Mississippi Valley lines, organizing this work into a special department. From 1904 to 1911 he was superintendent of water service on the Missouri Pacific-Iron Mountain system, completely overhauling a large portion of the water stations and installing over 40 treating plants. From 1911 to date he has been with the T. W. Snow Construction Company, Chicago, in charge of water service and coal chutes. T. S. Leake was in charge of buildings and coal chutes on the Illinois Central for 26 years, after which he spent three years in similar work on the Missouri Pacific before entering general contracting work. W. F. Leake spent 23 years in similar service on the Illinois Central and has also recently been in general contracting work. This company has opened offices at 537 South Dearborn street, Chicago, and will specialize in the construction of water and coaling stations. It will also make investigations of water supply and will design and construct water treating and filtering plants. It will also handle a general line of railroad supplies, including pipe and fittings, steel and wood tanks, gasoline and oil engines, pumps, boilers, etc.

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## TRADE PUBLICATIONS

STANDARD WOOD CONSTRUCTION.—A manual of standard wood construction has been published by the Yellow Pine Manufacturers' Association, George K. Smith, secretary, seventh floor, Wright building, St. Louis, Mo. It is 4½ in. x 7 in., 130 pages, paper cover and illustrated, and will be furnished to architects and engineers on receipt of request on firm letterhead. The accuracy of design of all wooden structures has been seriously impaired by the lack of accurate data as to the strength of the commercial sizes of timber. It is in order to remedy this condition governing the use of its product, that the Yellow Pine Manufacturers' Association has had prepared for free distribution, this very complete manual which it is hoped will bear the same relation to the lumber industry that the Cambria and Carnegie hand books do to the steel industry. Three earlier editions of this manual have been issued, but the tables in the present edition have been entirely recalculated and rearranged, and a great deal of additional information has been included. The information covered by the tables includes data on strength of beams, deflections, properties of commercial size timbers, floors, maximum bending moments, joist construction, stud portions, wood and steel roof trusses, nailed and spiked joints, formulæ and tables for trussed beams, recommended working unit stresses and the manufacturing and grading rules of the Yellow Pine Manufacturers' Association. The book is completely indexed and the arrangement and method of presenting the material has been based largely on that used successfully in the hand books of steel construction mentioned above, which are very generally known.

# Railway Construction

Beaver Valley & Ohio.—Incorporated in Pennsylvania with $120,000 capital, to build from a point in White township, Beaver county, to the Ohio state line, 12 miles. The incorporators include W. A. Goehring, president, R. R. Goehring, F. B. Hall, Zeleinople, and M. G. Hibbs, Pittsburgh.

Calgary & Fernie.—Application is being made to the Canadian parliament for an extension of time to build from Calgary, Alta., southwesterly via Kananaskis Pass to the headwaters of the Elk river, B. C., thence along Elk river valley to Fernie, B. C. Permission is also being asked to change the office of the company from Fernie, B. C., to Calgary, Alta. The Dominion government has granted a subsidy in aid of the construction of this line, of from $3,200 to $6,400 a mile, the total not to exceed 100 miles. J. R. Lawreym, S. S. Manahan, Victoria, B. C., and A. Mutz, Fernie, B. C., are interested in the project. (July 18, p. 131.)

Grand Marais & Northwestern.—This company, which was incorporated in Minnesota early in 1913, to build from Grand Marais, Minn., west to a connection with the Duluth & Northern Minnesota, about 50 miles, also to build a number of branch lines, is said to have given a contract recently to build the first section of 20 miles, and work is now under way clearing the right of way. A. Mitchell, president, and J. Jenswold, secretary, Duluth. (June 6, p. 1244.)

Gulf, New Mexico & Pacific.—Incorporated in New Mexico with $5,000,000 capital, it is said, to build a line from Roswell, N. M., northwest to a connection with the Denver & Rio Grande, at Farmington. It is understood that the New Mexico Central, now operating from Torrance, north to Santa Fe, 116 miles, is to form part of the through line. The names of the incorporators are not given.

Kettle Valley.—The Canadian parliament is being asked for an extension of time to build lines in British Columbia as follows: from a point 50 miles up the north fork of the Kettle river northerly to Fire valley, thence northwesterly following the general course of the Fire valley to Vernon, and westerly to a junction with the Nicola Kamloops & Similkameen, at or near Quilchena; from a point on this line near the junction of the east and west forks of the north fork of the Kettle river northeasterly to Franklin Camp, and thence to Killarney; from a point near Hedley on the line to be built from Midway to Hedley northerly along Twenty Mile creek for about 20 miles. Authority is also being asked to build from a point at or near Otter Summit to the Aspen Grove mineral district, about 30 miles, and for the ratification of an agreement with the Vancouver, Victoria & Eastern, in connection with Coquihalla joint section. (August 15, p. 313.)

New Mexico Central.—See Gulf, New Mexico & Pacific.

Norfolk & Elgin.—Incorporation is being asked for in Canada by this company to build from Simcoe, Ont., through Woodhouse Gore, Charlotte, North Walsingham and Houghton townships to a point within three miles of the Lake Erie shore, thence westerly through Houghton and Bayham townships to Port Burwell, also to build branches and to operate boats from Port Burwell. Price, Garvey & Company, Toronto, are solicitors for applicants.

Springfield & Western (Electric).—This company has completed a preliminary survey recently from Mt. Vernon, in Lawrence county, Mo., west via Stotts City, Clarkson, Sarcoxie and Duenweg to Joplin. The company also plans to build a 9-mile branch from Jenkins Creek to Carthage, 54 miles in all. The headquarters of the company are at Springfield, Mo.

Western Central (Electric).—The Ontario legislature is being asked to extend the time for building from Guelph, Ont., through Guelph, Puslinch, Nassagaweya, Esquesing, Chinguacousy, Toronto Gore, Etobicoke and York townships, to Toronto, with a branch from a point near Berlin through Waterloo, Woolwich and Wellesley townships and through Heidelburg to the village of Wellesley. A. T. Drummond, Toronto, is interested.

Wisconsin, Illinois & Indiana (Electric).—Incorporated in Illinois with $500,000 capital, and headquarters at Chicago, to build from the northern line of McHenry county, Ill., south through the counties of Cook, Du Page, Will, Kankakee, Livingston and McLean. The incorporators include J. C. Williams and H. M. Walker, Evanston; J. B. Hubling, Downers Grove, and J. L. Clark and C. H. Seeberger, both of Chicago.

## RAILWAY STRUCTURES

Memphis, Tenn.—The Chicago, Rock Island & Pacific has let a contract to the T. S. Leake Company, Chicago, for a brick freight house at Memphis, Tenn., 46 by 485 feet. A portion of the building 46 by 155 feet will be two-story, for office purposes. The work will include a transfer platform and an automobile platform, and the freight house will have asphalt mastic floors.

South Omaha, Neb.—The Missouri Pacific is building at this point a new roundhouse and additional yard trackage of about 600 cars' capacity, in addition to completing some second track work.

Tacoma, Wash.—The Northern Pacific has let a contract to the Widell Company, Tacoma, Wash., for the construction of several viaducts in connection with its Tacoma terminal improvements.

Ambulance Work on the Railways of Victoria.—The railway staff in Victoria is giving considerable attention to ambulance work. There are now 45 ambulance corps in existence at the principal railway centers. The authorities give every encouragement and facility for the training of the staff in first aid and offer prizes, both for team and individual work, annually, which are effective in stimulating interest. The system of furnishing first aid relief to passengers in the event of accident has been reorganized during recent years. All stations are now equipped with the necessary appliances.

Railway Development in Bosnia.—Ever since Bosnia and Herzegovina became a part of Austria-Hungary, an extension of the railway system of the two countries has been contemplated, with the end in view particularly of facilitating commerce with the Balkan and Oriental countries. Recently a bill was laid before the lower house of the Hungarian parliament, providing for the construction of various railway lines in Bosnia and Herzegovina, and for the conversion of several narrow gage railways into normal gage lines. The cost of the work is to be met by a loan of $55,000,000, which is to be raised, redeemable in 60 years. The Austrian and Hungarian governments will make yearly contributions towards covering the loan and defraying any further expenses which may arise. Nevertheless, Bosnia and Herzegovina will only be called upon to pay about $250,000 yearly as their share in this extensive railway development. It is understood that the construction and reconstruction are to be carried out by the two countries and that they will own the roads after completion.

A Military Railway Car in India.—The Great Indian Peninsula has recently constructed in its new shops at Matunga, a military car. The body of the car is 68 ft. long and 10 ft. wide on the outside. It is built of Burma teak on a substantial steel underframe. The mode of construction is unique, inasmuch, as in order to secure the largest possible cross section, the body and the underframe are incorporated as one structure. Inside there are folding berths sufficient to accompany 66 soldiers. They are arranged in three tiers on galvanized steel tubular framing, and are very similar to those on a troop ship. The rows of berths open onto a side corridor 2 ft. wide. Under the lower berths are rifle racks, while above the upper are large parcel racks for the soldiers' kits. Lavatory accommodation is provided at each end, and the arrangements in general are such that the cars may also be used in ordinary service. The cars will be closely coupled and vestibuled together with wide platforms, so that through communication is established between them. This is required for the service of meals, etc., which may be done from a central kitchen. The water supply has been particularly considered. Five hundred gallons will be carried under each car in specially designed tanks which can be readily cleaned. There is also a supply of filtered drinking water. The ventilation is taken care of by a series of openings fitted with shutters above the ordinary windows. That provides a double row of ventilators along the roof.

# Railway Financial News

BOSTON & MAINE.—The Hampden Railroad Company, which was organized to build 14.85 miles of road from Bondsville, on the Massachusetts Central branch of the Boston & Maine, to Athol Junction, on the Boston & Albany, had applied to the Massachusetts Public Service Commission for authority to issue $1,900,000 additional stock and $2,500,000 bonds. The commission, in granting permission to issue the stock and refusing permission to issue the bonds, said in part: "The simple fact that such a road, with no terminals and no rolling stock, is alleged to have cost about $290,000 a mile, is enough to put the commission on strict and careful inquiry as to the history of the enterprise and the methods pursued." There was an agreement made by Charles S. Mellen, when president of the New York, New Haven & Hartford and the Boston & Maine, with R. D. Gillette by which the Boston & Maine was to lease the Hampden and pay an annual rental of 5 per cent. of the construction cost. The report of the commission says that the cost, including interest, up to December 1, 1913, should have been $3,300,000, and that this sum is less than the actual amount shown by the accountants of the commission to have been spent in building the road. The report goes on to say, "In other words, it would appear that Mr. Gillette and his associates will not only be deprived of any profits or compensation for promoting and building the railroad, but may be obliged to stand a financial loss. Insofar as this result follows from the application of the principle we have adopted, it seems to be unavoidable. Moreover, it may not be entirely regrettable in the public interest if the general method of railroad promotion and construction employed in this case should be found to be unprofitable."

See item in regard to the Hampden Railroad in these columns last week.

The B. & M. directors on Tuesday voted to lease the Hampden.

CAROLINA, CLINCHFIELD & OHIO.—The New York Stock Exchange has listed $13,500,000 first mortgage 5 per cent. bonds, due 1938, with authority to issue $1,500,000 additional on notice of sale.

CHICAGO, MILWAUKEE & ST. PAUL.—This company has asked authority from the Wisconsin railroad commission to issue $30,000,000 general and refunding mortgage bonds to reimburse the company for expenditures already made on capital account, amounting to $20,000,000, and to provide money for the completion of construction work now in progress. It has not been decided as yet whether the bonds are to be 4½'s or 5's.

CHICAGO & MILWAUKEE ELECTRIC.—Judge Landis has authorized the receiver to pay the semi-annual interest due in January on the $1,080,000 5 per cent. bonds.

ERIE.—The New York Public Service Commission, Second district, has approved an issue of $2,000,000 4 per cent. general lien first consolidated mortgage bonds to be sold at not less than 80. The proceeds of the sale are to be used to reimburse the company for expenditures made for additions and betterments from income.

GRAND TRUNK.—The Grand Trunk has recently purchased the plant and equipment of the Chicago, New York & Boston Refrigerator Company and the Whipple Car Company at Chicago.

HAMPDEN RAILROAD.—See Boston & Maine.

LAKESIDE & MARBLEHEAD.—The Public Utilities Commission of Ohio has given permission to this company to issue $300,000 additional common stock to be sold at the best price obtainable, but for not less than par, the proceeds of the sale to be used for the purchase of a locomotive, a car ferry and other capital expenditures.

LEHIGH VALLEY.—Drexel & Co., Philadelphia, bought from the company and resold to the public at 93¼ $10,000,000 general consolidated mortgage 4½ per cent. bonds of 1903-2003. The proceeds of the sale are to be used to pay off $2,000,000 Elmira, Cortland & Northern bonds maturing April 1, 1914, and for additional equipment and terminal and other improvements.

NATIONAL RAILWAYS OF MEXICO.—Holders of the National Railways of Mexico prior lien 4½ per cent. bonds, the National Railroad Company prior lien 4½ per cent. bonds, and of the priority bonds of the Mexican Central are offered the privilege of receiving the interest due on January 1 on their bonds in 6 per cent notes, which are secured by the deposit with the Guaranty Trust Company, New York, of £595,580 ($2,977,900) 6 per cent. 10-year treasury gold bonds of the Mexican government. The total amount of interest due on January 1 is $2,460,341. Coupons are to be deposited not later than February 1 with the Guaranty Trust Company.

NEW YORK CENTRAL & HUDSON RIVER.—The New York Public Service Commission, Second district, has approved the issue of $10,696,000 equipment trust certificates to be sold at not less than 93½. It is understood that $3,000,000 of these certificates will be offered through J. P. Morgan & Co., New York, in the near future.

NEW YORK, NEW HAVEN & HARTFORD.—See Boston & Maine.

PENNSYLVANIA RAILROAD.—The *Wall Street Journal* says negotiations have been begun between the department of justice and the management of the Pennsylvania Railroad looking toward the disposal by the railroad company of its holdings in Norfolk & Western or a part thereof. No official statement is obtainable from Pennsylvania representatives, but there are indications that the details of the agreement remain to be settled. In well informed quarters it is stated that early in the present administration the Pennsylvania Railroad officers signified to President Wilson their desire to do everything possible to meet the administration's ideas in regard to the relations between railroads. The Pennsylvania management has always considered and still considers that this company's ownership of stock in the Norfolk & Western is entirely within the law, but not of sufficient importance to the owning company to be made the subject of a protracted and expensive litigation. It is stated that the attorney general has not asked the Pennsylvania to dispose of its Norfolk & Western, but merely requested the former company to take the matter up with him for discussion. The result of these discussions has been a virtual agreement that some plan would be devised conforming to the attorney general's ideas as he outlined them, whereby the Pennsylvania would divest itself of its present working control of the Norfolk & Western.

QUANAH, ACME & PACIFIC.—The Texas railroad commission has approved the issue of $170,000 bonds for improvements.

SEABOARD AIR LINE.—C. R. Capps, third vice-president, is quoted as saying that $20,000,000 bonds, which are to be issued to pay for the building of a road from Tampa, connecting with the Tampa Northern, and extending from Brooksville, Fla., to Inverness, and from there further up the west coat of Florida, have been authorized and the company is planning to sell them when a favorable bond market makes such a sale feasible.

UNION TERMINAL COMPANY (Dallas, Tex.).—This company has filed a deed of trust covering the issue of $5,000,000 5 per cent. bonds of April 1, 1912-1942.

VERMONT VALLEY.—No bids were received for the $2,300,000 one-year 6 per cent. notes, guaranteed by the Connecticut River Railroad, which were to be issued to pay for the Brattleboro extension and for the cost of acquiring the Montpelier & Wells River and the Barre and Barre Branch Railroads.

WABASH.—The retirement of F. A. Delano as receiver is noted elsewhere in this issue. This leaves E. B. Pryor and W. K. Bixby as sole receivers. It is understood that no successor to Mr. Delano will be appointed.

The United States district court has authorized the receivers to pay for equipment trust obligations falling due on January 1.

WESTERN MARYLAND.—The Maryland Public Service Commission has approved the issue of $5,000,000 6 per cent. notes, mentioned in these columns last week.

[ADVERTISEMENT.]

# ANNUAL REPORT.

## ANNUAL REPORT, UNION PACIFIC, YEAR ENDED JUNE 30, 1913.

### INCOME ACCOUNT FOR THE YEAR.

The operating income, other income, and fixed and other charges, *after excluding all offsetting accounts*, were as follows:

| | 1913. | 1912. | INCREASE OR DECREASE. |
|---|---|---|---|
| Average miles of road operated | 7,348.97 | 7,149.87 | 199.10 |
| **OPERATING INCOME.** | | | |
| Operating revenues | $91,810,306.79 | $84,180,096.67 | $7,630,210.12 |
| Outside operations.—revenues.. | 1,828,151.80 | 1,797,512.11 | 30,639.69 |
| TOTAL REVENUES | $93,638,458.59 | $85,977,608.78 | $7,660,849.81 |
| Operating expenses | $52,097,567.31 | $48,533,320.24 | $3,564,247.07 |
| Outside operations—expenses... | 1,932,649.09 | 1,856,086.68 | 76,562.41 |
| TOTAL EXPENSES | $54,030,216.40 | $50,389,406.92 | $3,640,809.48 |
| REVENUES OVER EXPENSES | $39,608,242.19 | $35,588,201.86 | $4,020,040.33 |
| TAXES | 4,666,276.57 | 4,368,788.61 | 297,487.96 |
| NET OPERATING INCOME | $34,941,965.62 | $31,219,413.25 | $3,722,552.37 |
| **OTHER INCOME.** | | | |
| Interest on bonds owned (Table 13) | $2,647,583.32 | $1,834,019.58 | $813,563.74 |
| Dividends on stocks owned (Table 14) | 13,151,422.00 | 14,651,247.50 | —1,499,825.50 |
| Interest on loans and on open accounts—balance | 1,951,210.14 | 2,131,975.97 | —180,765.83 |
| Rentals from lease of road | 72,966.78 | 72,941.06 | 25.72 |
| Rentals from joint tracks, yards, and terminal facilities | 817,952.17 | 811,546.75 | 6,405.42 |
| Miscellaneous rentals | 469,118.88 | 447,679.36 | 21,439.52 |
| Rentals from steamships | ..... | 101,600.00 | —101,600.00 |
| Net income from lease of unpledged lands and town lots. | ..... | 35.40 | —35.40 |
| Miscellaneous income | 97,718.18 | 97,625.84 | 92.34 |
| TOTAL OTHER INCOME | $19,207,971.47 | $20,148,671.46 | —$940,699.99 |
| Total, net operating income and other income | $54,149,937.09 | $51,368,084.71 | $2,781,852.38 |
| **FIXED AND OTHER CHARGES.** | | | |
| Interest on funded debt in hands of the public (Table 12) | $14,201,657.63 | $14,068,703.54 | $132,954.09 |
| Sinking fund requirements | 11,980.00 | 12,013.33 | —33.33 |
| Hire of equipment—balance | 1,825,987.69 | 1,930,118.08 | —104,130.39 |
| Rentals for joint tracks, yards, and terminal facilities | 918,651.40 | 922,171.05 | —3,519.65 |
| Miscellaneous rentals | 413,651.75 | 369,838.00 | 43,813.75 |
| Miscellaneous expenses | 903.08 | 25,247.35 | —24,344.27 |
| TOTAL FIXED AND OTHER CHARGES | $17,372,831.55 | $17,328,091.35 | $44,740.20 |
| SURPLUS OVER FIXED AND OTHER CHARGES | $36,777,105.54 | $34,039,993.36 | $2,737,112.18 |
| *Application of Surplus.* | | | |
| Dividends on stocks of Union Pacific Railroad Co.: | | | |
| 4 per cent. on preferred stock | $3,981,740.00 | $3,981,744.00 | —$4.00 |
| 10 per cent. on common stock | 21,663,370.21 | 21,664,738.57 | —1,368.36 |
| | $25,645,110.21 | $25,646,482.57 | —$1,372.36 |
| *Surplus after payment of dividends* | $11,131,995.33 | $8,393,510.79 | $2,738,484.54 |

— Decreases.

The items of Operating Revenues and Operating Expenses, including Outside Operations, are dealt with in detail under "Transportation Operations" in pages 20 to 24, inclusive.

Taxes increased $297,487.76, or 6.81 per cent. over the preceding year, and $2,596,542.00, or 125.45 per cent., compared with 1907, there having been a constant increase during the past six years.

The *decrease* in Total Other Income, amounting to $940,699.99, is due principally to *decrease* in "Dividends on stocks owned," amounting to $1,499,825.50, as detailed in Table No. 14, which is partially offset by *increase* in "Interest on bonds owned," amounting to $813,563.74, as detailed in Table No. 13.

### FUNDED DEBT.

The Oregon Short Line Railroad Company pledged $108,000,000 par value of the stock of the Southern Pacific Company with the Trustee under the Four Per Cent. Refunding Mortgage as collateral. The mortgage contained provision for the substitution of collateral, providing, among other things, that bonds issued under the mortgage could be surrendered against the withdrawal of collateral, upon an appraisal of the collateral in the manner provided in the mortgage. Promptly after the decision of the Supreme Court of the United States in December, 1912, requiring the disposition of the stock of the Southern Pacific Company, steps were taken to withdraw from the pledge the $108,000,000 stock of the Southern Pacific Company, in order to have that stock free in the Treasury to be dealt with as the Court might require, and to that end the Oregon Short Line Railroad Company acquired from Union Pacific Railroad Company, at the price originally paid therefor by the Union Pacific Railroad Company, and surrendered to the Trustee $55,000,000 of the bonds issued under this mortgage, thereby reducing the issue from $100,000,000 to $45,000,000, which is secured by:

$27,577,000 face value, First Mortgage Four Per Cent. Bonds of the San Pedro, Los Angeles & Salt Lake R. R. Co.
$16,425,400 par value Common Stock of the Baltimore & Ohio R. R. Co.
$7,206,400 par value Preferred Stock of the Baltimore & Ohio R. R. Co.
$12,000,000 par value of the Capital Stock of the New York Central & Hudson River R. R. Co.

The $55,000,000 face value of the Four Per Cent. Refunding Bonds having been retired, it was necessary to credit Profit and Loss with $5,107,440, representing net discount on bonds as follows:

In 1903, the Union Pacific Railroad Company acquired from the Oregon Short Line Railroad Company $46,491,000 face value of Four Per Cent. and Participating Bonds at 90 per cent. The discount on these bonds, amounting to $4,649,100, was charged to Profit and Loss and included in the item of $6,808,700 reported in Table No. 3 and explained in page 10 of the Annual Report for the year ended June 30, 1903. In 1905, the Union Pacific Railroad Company surrendered to the Oregon Short Line Railroad Company $45,991,000 face value of said bonds in exchange for a like amount of Four Per Cent. Refunding Bonds. During the same year, the Union Pacific Railroad Company purchased from the Oregon Short Line Railroad Company $14,009,000 face value of Four Per Cent. Refunding Bonds at 94 per cent., the discount on which, amounting to $840,540, was charged to Profit and Loss and included in the item of $3,639,021.75 as reported in Table No. 3 and explained in page 10 of the Annual Report for the year ended June 30, 1905. Of the bonds thus acquired, the Union Pacific Railroad Company sold, during the year 1904, $500,000 face value of Four Per Cent. and Participating Bonds and, during the years 1905 and 1906, $2,250,000 and $2,750,000, face value, respectively, of Four Per Cent. Refunding Bonds at a profit of $382,200. Therefore, the net discount remaining on account of these transactions amounted to $5,107,440, and this amount was credited to Profit and Loss as of June 30, 1913.

### ASSETS AND LIABILITIES.

The Assets and Liabilities are shown in detail in the General Balance Sheet, classified in the manner prescribed by the Interstate Commerce Commission, except as indicated by notations in Table No. 4.

The increases and decreases, compared with 1912, were as follows:

| | | |
|---|---|---|
| **ASSETS.** | | |
| *Decrease in* ADVANCES TO PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES FOR CONSTRUCTION, EQUIPMENT AND BETTERMENTS | $364,135.22 | |
| *Decrease in* WORKING ASSETS, due principally to payment of Southern Pacific Co. bond purchase notes issued in 1912, as explained in page 10 of the report for that year, and expenditures for Property Investment account | 43,776,094.01 | |
| *Total decrease in Assets* | | $44,140,229.23 |
| *Increase in* PROPERTY INVESTMENT, as detailed in page 16: | | |
| Total expenditures | $20,421,952.26 | |
| Less: Reserve for accrued depreciation | 16,029,111.51 | |
| | $4,392,840.75 | |
| *Increase in* SECURITIES OF PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES, Table No. 7 | 21,201.00 | |
| *Increase in* MISCELLANEOUS INVESTMENTS | 248,439.04 | |
| *Increase in* INVESTMENT SECURITIES, due principally to purchase of Chicago & Alton Railroad Co. General Mortgage Six Per Cent. Bonds and Southern Pacific Co. (C. P. Stock Collateral) Four Per Cent. Bonds | 5,573,396.58 | |
| *Increase in* ACCRUED INCOME, NOT DUE | 277,664.67 | |
| *Increase in* DEFERRED DEBIT ITEMS, due principally to advances to Union Pacific Equipment Association and Pacific Fruit Express Co. | 11,177,026.22 | |
| *Total increase in Assets* | | 21,690,568.26 |
| *Net decrease in Assets* | | $22,449,660.97 |
| **LIABILITIES.** | | |
| *Decrease in* STOCK, as detailed in page 11 under "Capital Stock" | $10,500.00 | |
| *Decrease in* MORTGAGE, BONDED, AND SECURED DEBT, as detailed in page 11 under "Funded Debt" | 10,025.00 | |
| *Decrease in* WORKING LIABILITIES, due principally to the payment of Southern Pacific Co. bond purchase notes issued in 1912, as explained in page 10 of the report for that year | 24,150,404.85 | |
| *Decrease in* DEFERRED CREDIT ITEMS, due principally to discount on Oregon Short Line Railroad Co. Bonds, amounting to $5,107,440, as explained in page 12, and to profit from sales of securities prior to July 1, 1912, amounting to $313,702.86, said amount having been transferred to Profit and Loss this year, as shown in Table No. 3, and included in the item of $552,908.23 | 5,639,511.59 | |
| *Total decrease in Liabilities* | | $29,810,441.44 |
| *Increase in* ACCRUED LIABILITIES, NOT DUE | | 408,276.34 |
| *Net decrease in Liabilities* | | $29,402,165.10 |
| *Decrease in Liabilities in excess of decrease in Assets* | | $6,952,504.13 |
| *Increase in* APPROPRIATED SURPLUS, due principally to Reserve for Depreciation of Securities, as explained in page 26 | | $50,023,942.12 |
| *Decrease in* PROFIT AND LOSS, BALANCE, as detailed in Table No. 3 | | 43,071,437.99 |
| | | $6,952,504.13 |

### CAPITAL EXPENDITURES.

The following expenditures for EXTENSIONS and BRANCHES were made during the year:

| | |
|---|---|
| *By Union Pacific Railroad Company:* | |
| Callaway to Gandy, Nebraska | $25,032.77 |
| Gering to Haig, Nebraska | 289,485.00 |
| Summit to Lane, Nebraska | 46,901.24 |
| Menoken to Marysville, Kansas | 200,045.63 |
| Dent to Fort Collins, Colorado | 8,756.55 |
| Grant Mine to La Salle, Colorado | 14,817.01 |
| Greeley Junction to Briggsdale, Colorado | 425.01 |
| Sand Creek to St. Vrains, Colorado | 2,869.71 |
| Spur to Lion Coal Company's Mine, Wyoming | 57,588.74 |
| Rock Springs to Coal Fields, Wyoming | 7,361.50 |
| Hastings to Gibbon, Nebraska (Hastings & Northwestern R. R. Co.) | 725,068.22 |
| | $1,378,351.38 |

| | | |
|---|---|---|
| *Credits:* | | |
| Northport to Gering, Nebraska..$5,374.43 | | |
| Cloverly to Hungerford, Colorado 135.76 | | |
| Preliminary surveys ..... 1,522.95 | | |
| | 7,033.14 | |
| Total Union Pacific Railroad Company..... | | $1,371,318.24 |
| *By Oregon Short Line Railroad Company:* | | |
| Ashton to Victor, Idaho..... | $514,455.83 | |
| Burley to Oakley, Idaho..... | 625.00 | |
| Caldwell to Wilder, Idaho..... | 3.13 | |
| Murphy to Lakeport, Idaho..... | 2,079,103.45 | |
| Montpelier to Paris, Idaho..... | 792.38 | |
| Moreland to Aberdeen, Idaho..... | 7,531.84 | |
| Nyssa, Oregon, to Homedale, Idaho..... | 85,108.97 | |
| Rupert to Bliss, Idaho..... | 15,621.25 | |
| Twin Falls to Rogerson, Idaho..... | 21,024.28 | |
| Ballard to Logan, Utah..... | 136,438.29 | |
| Richfield to Hill City, Idaho (Central Idaho R. R. Co.)..... | 309,941.49 | |
| Burley to Marshfield, Idaho (Salt Lake & Idaho R. R. Co.)..... | 61,349.00 | |
| Preliminary surveys ..... | 29,653.05 | |
| Total Oregon Short Line Railroad Company..... | | 3,261,647.96 |
| *By Oregon-Washington Railroad & Navigation Company:* | | |
| Attalia to North Yakima, Washington..... | $16,289.94 | |
| Centralia to Hoquiam, Washington..... | 39,645.39 | |
| Cosmopolis to Primo, Washington..... | 15,500.61 | |
| Kennewick to White Bluffs, Washington.... | 1,368.51 | |
| Midvale to Sunnyside, Washington..... | 162.09 | |
| Portland, Oregon, to Seattle, Washington, north of Columbia River..... | 248,483.61 | |
| Portland, Oregon, to Seattle, Washington, south of Columbia River..... | 2,502.50 | |
| South Montesano to Montesano, Washington | 92,905.66 | |
| Spokane Terminals, Washington ..... | 68,180.10 | |
| Spokane to Ayer, Washington..... | 1,774,933.90 | |
| Blakes, Oregon, to Lewiston, Idaho..... | 24,254.42 | |
| Coyote to Stanfield, Oregon..... | 9.76 | |
| Vale to Brogan, Oregon..... | 75.00 | |
| Vale to Odell, Oregon..... | 2,621,405.71 | |
| Preliminary surveys ..... | 81,819.85 | |
| Miscellaneous ..... | 1,450.64 | |
| | $4,988,987.69 | |
| *Credits:* | | |
| Hoquiam to Ozette Lake, Washington ..... $18.50 | | |
| Des Chutes Railroad Company: Adjustment of previous years' expenditures ..... 6,157.34 | | |
| | 6,175.84 | |
| Total Oregon-Washington Railroad & Navigation Company ..... | | 4,982,811.85 |
| *Total Extensions and Branches*..... | | $9,615,778.05 |

The following expenditures for Additions and Betterments, including Equipment, were made during the year, as detailed in Table No. 22:

| | | |
|---|---|---|
| ROADWAY, TRACK, AND OTHER APPURTENANCES: | | |
| Second main track ..... | $1,450,270.46 | |
| Real estate, right of way, and station grounds | 57,448.54 | |
| Changes in line, revision of grades, and other roadbed improvements ..... | 73.182.37 | |
| Bridges, trestles, and culverts..... | 247,402.46 | |
| Increased weight of rail, improved frogs and switches, and track fastenings and appurtenances ..... | 316,267.64 | |
| Ballast ..... | 34,923.07 | |
| Sidings and spur tracks..... | 355,814.59 | |
| Terminal yards ..... | 89,447.10 | |
| Fencing, improvement and eliminaton of grade crossings ..... | 59,721.45 | |
| Interlocking, block, and other signal apparatus ..... | 134,568.27 | |
| Telegraph and telephone lines..... | 42,386.32 | |
| | | $2,861,432.27 |
| BUILDINGS, STRUCTURES, AND OTHER APPURTENANCES: | | |
| Station buildings and fixtures..... | $280,191.71 | |
| Roadway machinery and tools..... | 24,748.80 | |
| Shops, engine-houses, machinery and tools.. | 597,471.07 | |
| Water and fuel stations..... | 296,570.30 | |
| Other additions and betterments..... | 88,741.09 | |
| | | 1,287,722.97 |
| Total ..... | | $4,149,155.24 |
| *Less:* Cost of property abandoned during the year, not to be replaced ..... | | 317,029.97 |
| Total Additions and Betterments, excluding Equipment ..... | | $3,832,125.27 |
| *EQUIPMENT: | | |
| 35 locomotives .....$634,231.95 | | |
| 92 passenger-train cars ..... 960,609.41 | | |
| 882 freight-train cars ..... 930,724.64 | | |
| 451 work equipment ..... 225,567.21 | | |
| | $2,751,133.21 | |
| Additional cost of equipment purchased last year ..... | 25,916.37 | |
| Improvements to existing equipment..... | 13,568.09 | |
| | | $2,790,617.67 |
| *Less:* Equipment vacated or transferred to another class and credited to "Equipment," during the year, as follows: | | |
| 17 locomotives ..... | $160,818.41 | |
| 26 passenger-train cars ..... | 164,235.26 | |
| 875 freight-train cars ..... | 527,666.17 | |
| 592 work equipment ..... | 219,425.57 | |
| | | $1,072,145.41 |
| | | $1,718,472.26 |
| Total ADDITIONS and BETTERMENTS, including EQUIPMENT ..... | | $5,550,597.53 |

*In addition to the equipment purchased during the year and charged to "Equipment," as detailed above, the following equipment was leased during the year from the Union Pacific Equipment Association *whose entire capital stock is owned by Union Pacific Railroad Company:*

| | COST. |
|---|---|
| 152 Locomotives ..... | $3,399,890.81 |
| 18 Passenger-Train Cars ..... | 117,682.59 |
| 2,440 Freight-Train Cars ..... | 2,554,767.15 |
| Total ..... | $6,072,340.55 |

### PROPERTY INVESTMENT.

The increase in "Property Investment" as reported in the General Balance Sheet (Table No. 4) is made up as follows:

| | | |
|---|---|---|
| Expenditures for Extensions and Branches, as detailed in page 14 ..... | | $9,615,778.05 |
| Expenditures for Additions and Betterments, including Equipment (Table 22), and as explained in page 15..... | | 5,550,597.53 |
| Total ..... | | $15,166,375.58 |
| Difference between cost to Oregon-Washington Railroad & Navigation Company of properties acquired by it December 23, 1910, and cost thereof on books of vendor companies as explained below ..... | | 6,190,769.57 |
| Total ..... | | $21,357,145.15 |
| *Less:* Amount received from the Trustee of the Union Pacific Railroad Company's First Railroad and Land Grant Mortgage, in payment for expenditures for additions, betterments, improvements, etc., not otherwise provided for.....$900,000.00 | | |
| Adjustment in accounts ..... 35,192.89 | | |
| | | 935,192.89 |
| Total ..... | | $20,421,952.26 |

The item of increase of $6,190,769.57, reported above, results from the consolidation of the properties in Oregon and Washington in the ownership of the Oregon-Washington Railroad & Navigation Company, made on December 23, 1910. The aggregate cost of the Oregon-Washington Railroad & Navigation Company of the properties then acquired by it from The Oregon Railroad and Navigation Company and 14 minor companies exceeded, by the above amount, the aggregate cost of these properties as shown on the books of the 15 vendor companies. The Oregon Railroad and Navigation Company having at that time a few shares of its stock outstanding in the hands of the public, it was deemed necessary that the consideration for the sale of its properties to the new company should be the actual value thereof as nearly as the same could be ascertained, rather than a consideration based upon the original capitalization of the company which was the basis of its book cost. The consideration paid by the new company was, therefore, based upon an exhaustive physical valuation of the properties. In the case of the Spokane Union Depot Company also, the consideration paid was based upon a physical valuation, there being no data available as to the actual original cost of the property. The properties of the 13 other vendor companies were transferred to the new company at considerations representing their actual cost. The valuations of the properties of The Oregon Railroad and Navigation Company and Spokane Union Depot Company considerably exceeded the book cost of the properties and resulted in the increase of cost above mentioned. This increase did not appear in the Annual Reports for the fiscal years ended June 30, 1911, and June 30, 1912, being offset in the consolidated balance sheet of the Union Pacific Railroad and auxiliary companies by a contingent liability of equal amount, which had been set up on the books of the Oregon Short Line Railroad Company as a contingent fund for the purpose of making any adjustments in the property account resulting from the consolidation which might be found necessary as the result of the liquidation of the vendor companies. This contingent liability has now been transferred to Profit and Loss, leaving the cost of railways, equipment, and appurtenances of the Oregon-Washington Railroad & Navigation Company at the amount fixed at the time of said consolidation, and consequently the increase in cost appears now for the first time in the consolidated balance sheet.

It has been the practice of the Union Pacific to provide for the renewal or replacement of equipment condemned, sold, or otherwise disposed of, by charging Operating Expenses with the original cost (less salvage) at the time the units of equipment were retired from service. In order to fully conform with the accounting regulations of the Interstate Commerce Commission in respect to depreciation of equipment, this practice has been discontinued, and, commencing July 1, 1913, an amount, based upon the estimated remaining life of the equipment in service on that date (less allowance for salvage), will be charged to Operating Expenses monthly and credited to "Reserve for Accrued Depreciation." The depreciation which had accrued to June 30, 1913, on the basis of the estimated life of equipment in service on that date, amounting to $16,007,237, was charged to "Profit and Loss," and credited to "Reserve for Accrued Depreciation," as of June 30, 1913.

As equipment is condemned, sold, or otherwise disposed of, the accrued depreciation thereon to the date of retirement will be charged to "Reserve for Accrued Depreciation," and the only charge to Operating Expenses, if any, will be the difference between the original cost (less salvage) and the amount of the accrued depreciation.

The former practice was followed because it accorded with the facts in that as equipment was retired from service, the cost (less salvage) was charged to Operating Expenses, instead of charging monthly an amount arbitrarily assumed to represent the accrued depreciation on equipment still in actual use. But in view of the insistence of the Interstate Commerce Commission that a charge should be made in respect to depreciation of equipment, and the fact that most railroad companies have adopted this practice, it was deemed advisable that the Union Pacific should do likewise.

## TRANSPORTATION OPERATIONS.

The results of the year's transportation operations, compared with those of the year ended June 30, 1912, were as follows:

| | 1913. | 1912. | INCREASE OR DECREASE. | PER CENT. |
|---|---|---|---|---|
| Average miles of road operated | 7,348.97 | 7,149.87 | 199.10 | 2.8 |

| Operating Revenues. | | | | |
|---|---|---|---|---|
| Freight revenue | $63,773,803.58 | $57,483,557.90 | $6,290,245.68 | 10.9 |
| Passenger revenue | 20,582,426.78 | 19,754,096.94 | 828,329.84 | 4.2 |
| Mail revenue | 2,882,231.78 | 2,877,129.07 | 5,102.71 | .2 |
| Express revenue | 2,151,980.62 | 1,982,749.91 | 169,230.71 | 8.5 |
| Other passenger-train revenue | 740,065.87 | 453,160.32 | 286,905.55 | 63.3 |
| Other operating revenue | 1,679,798.16 | 1,629,402.53 | 50,395.63 | 3.1 |
| Total operating revenues | $91,810,306.79 | $84,180,096.67 | $7,630,210.12 | 9.1 |
| Outside operations—revenue | 1,828,151.80 | 1,797,512.11 | 30,639.69 | 1.7 |
| Total revenues | $93,638,458.59 | $85,977,608.78 | $7,660,849.81 | 8.9 |
| **Operating Expenses.** | | | | |
| Maintenance of way and structures | $10,688,563.68 | $9,594,538.34 | $1,094,025.34 | 11.4 |
| Maintenance of equipment | 10,694,011.05 | 9,812,175.09 | 881,835.96 | 9.0 |
| Traffic expenses | 2,107,146.25 | 2,119,603.04 | —12,456.79 | .6 |
| Transportation expenses | 26,077,119.68 | 24,755,109.06 | 1,322,010.62 | 5.3 |
| General expenses | 2,530,726.65 | 2,251,894.71 | 278,831.94 | 12.4 |
| Total operating expenses | $52,097,567.31 | $48,533,320.24 | $3,564,247.07 | 7.3 |
| Outside operations—expenses | 1,932,649.09 | 1,856,086.68 | 76,562.41 | 4.1 |
| Total expenses | $54,030,216.40 | $50,389,406.92 | $3,640,809.48 | 7.2 |
| Revenues over expenses | $39,608,242.19 | $35,588,201.86 | $4,020,040.33 | 11.3 |
| Taxes | 4,666,276.57 | 4,368,788.61 | 297,487.96 | 6.8 |
| Net operating income | $34,941,965.62 | $31,219,413.25 | $3,722,552.37 | 11.9 |
| **Freight Traffic.** (*Commercial Freight only.*) | | | | |
| Tons of revenue freight carried | 16,456,182 | 14,709,164 | 1,747,018 | 11.9 |
| Ton miles, revenue freight | 6,283,029,209 | 5,356,162,375 | 926,866,834 | 17.3 |
| Average freight revenue per ton mile (*cents*) | .971 | 1.005 | —.034 | 3.4 |
| Average distance hauled per ton (*miles*) | 381.80 | 364.14 | 17.66 | 4.8 |
| Average freight revenue tons per revenue freight train mile | 437.22 | 409.38 | 27.84 | 6.8 |
| Average freight revenue per revenue freight train mile | $4.18 | $4.01 | $0.17 | 4.2 |
| **Passenger Traffic.** | | | | |
| Revenue passengers carried | 8,563,262 | 8,194,026 | 369,236 | 4.5 |
| Revenue passengers carried one mile | 903,046,763 | 886,336,274 | 16,710,489 | 1.9 |
| Average passenger revenue per passenger mile (*cents*) | 2.243 | 2.194 | .049 | 2.2 |
| Average distance hauled per passenger (*miles*) | 105.46 | 108.17 | —2.71 | 2.5 |
| Average passengers per passenger train mile | 64.75 | 63.77 | .98 | 1.5 |
| Average passenger revenue per passenger train mile, passengers only | $1.45 | $1.40 | $0.05 | 3.6 |
| Average total passenger train revenue per passenger train mile | $1.72 | $1.60 | $0.12 | 7.5 |

—Decreases.

| | | | | |
|---|---|---|---|---|
| Rails | 358,345.21 | 165,905.51 | 192,439.70 | 116.0 |
| Other track material | 508,125.33 | 289,521.23 | 218,604.10 | 75.5 |
| Roadway and track—ordinary | 4,167,767.00 | 3,289,497.25 | 878,269.75 | 26.7 |
| Extraordinary repairs of roadway and track | 284,793.56 | 237,219.91 | 47,573.65 | 20.1 |
| Removal of snow, sand and ice | 239,934.46 | 305,958.32 | —66,023.86 | 21.6 |
| Tunnels, bridges and other appurtenances | 883,291.51 | 907,400.22 | —24,108.71 | 2.7 |
| Signals, telegraph and power lines | 226,150.54 | 372,310.01 | —146,159.47 | 39.3 |
| Buildings and other structures | 1,158,073.59 | 956,143.48 | 201,930.11 | 21.1 |
| Miscellaneous | 363,489.72 | 290,311.60 | 73,178.12 | 25.2 |
| Maintaining joint facilities | *215,977.85 | *194,818.10 | —21,159.75 | ... |
| Line changes | 91,287.75 | 590,989.31 | —499,701.56 | 84.6 |
| Total | $10,688,563.68 | $9,594,538.34 | $1,094,025.34 | 11.4 |
| Cost per mile—all main tracks operated and maintained | $1,294.74 | $1,207.87 | $86.87 | 7.2 |

*Credit.
—Decreases.

Owing to the decrease in operating revenues during the year ending June 30, 1912, resulting from a partial failure of the crops and causes incident thereto, Maintenance of Way expenses were so regulated that, while the standard of efficiency of service to the public was not affected, the expenditures were kept at a minimum, with the result that similar expenditures for this year, as compared with the year 1912, show an increase of $1,094,025, or 11.4 per cent., but compared with the year 1911, only an increase of $243,360, or 2.3 per cent.

There were relaid with new steel rail 304.79 miles of track, which, together with large tie renewals and other incidental work, accounts for the increase in Maintenance of Way and Structures expenses.

Of the total increase, $733,000 represents wages, of which $181,000 is due to increase in the hourly rates of pay on account of scarcity of unskilled labor.

The following track material was used in making renewals, the entire cost of which was charged to Operating Expenses, with the exception of $316,267.64, being the proportion charged to Additions and Betterments, as required by the accounting regulations of the Interstate Commerce Commission:

| | 1913. | 1912. | Increase or Decrease. |
|---|---|---|---|
| **Miles of new steel rails** | 304.79 | 172.62 | 132.17 |
| Per cent. of renewal of all rails in track, including sidings | 2.95 | 1.74 | 1.21 |
| Number of burnettized ties | 1,016,530 | 1,118,411 | —101,881 |
| Number of other ties | 1,211,451 | 901,875 | 309,576 |
| Total number of ties | 2,227,981 | 2,020,286 | 207,695 |
| **Equal to miles of continuous track** | 802.59 | 726.98 | 75.61 |
| Per cent. of renewal of all ties in track, including sidings | 7.78 | 7.31 | .47 |
| Number of tie plates | 973,455 | 763,497 | 209,958 |
| Equal to miles of continuous track | 175.33 | 137.37 | 37.96 |
| Number of continuous rail joints (single pieces) | 168,787 | 86,223 | 82,564 |
| Equal to miles of continuous track | 263.72 | 136.16 | 127.56 |

The weight of rails per yard in main line and branches at the close of the year was as follows:

| Miles of First and Additional Main Tracks Operated and Maintained. | Total. | 90 Lb. | 85 Lb. | 80 Lb. | 75 Lb. | 70 Lb. | 67 Lb. | 65 Lb. | 62½ Lb. | 62 Lb. | 60 Lb. | 56 Lb. | Less than 56 Lb. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main line | 4,611.35 | 2,090.46 | 15.56 | 1,310.01 | 587.57 | 504.76 | .... | 98.07 | .... | .... | 4.01 | .75 | .16 |
| Branches | 3,490.25 | 28.70 | 1.41 | 131.86 | 552.83 | 799.68 | 29.80 | 2.78 | 6.06 | 22.56 | 1,115.67 | 576.21 | 222.69 |
| Total | 8,101.60 | 2,119.16 | 16.97 | 1,441.87 | 1,140.40 | 1,304.44 | 29.80 | 100.85 | 6.06 | 22.56 | 1,119.68 | 576.96 | 222.85 |
| Per cent. of total miles of track | 100.00 | 26.16 | .21 | 17.80 | 14.08 | 16.10 | .37 | 1.24 | .07 | .28 | 13.82 | 7.12 | 2.75 |
| Per cent. last year | 100.00 | 23.51 | .44 | 19.58 | 13.12 | 16.79 | .38 | 1.30 | .... | .37 | 14.37 | 7.50 | 2.64 |

The details of Operating Revenues and Operating Expenses are shown in Table No. 23, and Operating Results and Statistics in Table No. 24.

Operating Revenues are the largest in the history of the Union Pacific, the increase over the previous year being $7,630,210.12, or 9.1 per cent., and, as will be observed from the preceding table, this increase was general in all sources, but particularly so in the freight revenue, which showed a consistent gain month by month.

*Tons of revenue freight carried* increased 11.9 per cent., while the *average freight revenue per ton mile* decreased 3.4 per cent. The decrease in the *average freight revenue per ton mile* was overcome by the large increase in the volume of traffic and the longer distance hauled.

The number of *revenue passengers carried* increased 4.5 per cent., while the *average passenger revenue per passenger mile* increased 2.2 per cent. The increase in the *average passenger revenue per passenger mile* is due to the increased number of passengers carried a shorter distance.

Operating Expenses, excluding Outside Operations, increased $3,564,247.07, or 7.3 per cent. This increase is dealt with in the following detailed statements in which Operating Expense Accounts have been condensed in order to present the year's expenses in a concise form:

MAINTENANCE OF WAY AND STRUCTURES.

| | 1913. | 1912. | Increase or Decrease. | Per Cent. |
|---|---|---|---|---|
| Average miles of track operated and maintained—first and additional main tracks | 8,255.36 | 7,943.38 | 311.98 | 3.9 |
| Superintendence | $725,650.87 | $707,152.52 | $18,498.35 | 2.6 |
| Ballast | 52,182.19 | 72,281.65 | —20,099.46 | 27.8 |
| Ties | 1,845,449.80 | 1,604,665.43 | 240,784.37 | 15.0 |

MAINTENANCE OF EQUIPMENT.

| | 1913. | 1912. | Increase or Decrease. | Per. Cent. |
|---|---|---|---|---|
| Superintendence | $463,181.94 | $479,109.94 | —$15,928.00 | 3.3 |
| Steam locomotives—repairs | 5,631,769.77 | 5,017,503.81 | 614,265.96 | 12.2 |
| Passenger-train cars—repairs | 799,780.11 | 817,215.70 | —17,435.59 | 2.1 |
| Freight-train cars—repairs | 2,496,839.57 | 2,365,332.94 | 131,506.63 | 5.6 |
| Floating equipment—repairs | 1,439.41 | 569.13 | 870.28 | 152.9 |
| Work equipment—repairs | 145,807.73 | 120,801.92 | 25,005.81 | 20.7 |
| Miscellaneous | 426,582.09 | 500,318.81 | —73,736.72 | 14.7 |
| Maintaining joint equipment at terminals | 7,870.77 | *3,404.05 | 11,274.82 | ... |
| Renewals and depreciation | 720,739.66 | 514,726.89 | 206,012.77 | 40.0 |
| Total | $10,694,011.05 | $9,812,175.09 | $881,835.96 | 9.0 |

*Credit.

During the year there were condemned, sold, or otherwise disposed of, 17 locomotives, 26 passenger-train cars, 875 freight-train cars, and 592 work equipment, the original cost of which, less salvage, amounting to $718,597.54, was charged to Maintenance of Equipment, an increase over the previous year of $207,412.25, or 40.6 per cent.

The original cost, salvage value, and amount charged to "Maintenance of Equipment" are as follows:

| | Total. | Locomotives. | Passenger-Train Cars. | Freight-Train Cars. | Work Equipment. |
|---|---|---|---|---|---|
| Original cost (estimated if not known) | $1,072,145.41 | $160,818.41 | $164,235.26 | $527,666.17 | $219,425.57 |
| Less allowance for salvage | 353,547.87 | 35,155.60 | 86,632.18 | 163,036.35 | 68,723.74 |
| Charged to "Maintenance of Equipment" | $718,597.54 | $125,662.81 | $77,603.08 | $364,629.82 | $150,701.83 |

and in addition thereto a charge of $2,142.12 was made for depreciation in Floating Equipment.

The large increase in the maintenance of locomotives is due partially to increased mileage of 3.3 per cent, also to reorganization of shop forces incident to the strike in the summer of 1911.

The average cost of repairs and renewals per locomotive—excluding motor cars—and per car per annum, and the average number of serviceable locomotives and cars owned during the year were:

| | Average Cost Per Annum. (*Including original cost less salvage, of locomotives and cars condemned, sold or otherwise disposed of.*) | | Average Serviceable Number. | |
|---|---|---|---|---|
| | 1913. | 1912. | 1913. | 1912. |
| *Locomotives* (repairs, renewals, and replacements) | $4,051.55 | $3,723.57 | 1,404 | 1,329 |
| *Passenger-train cars* (repairs, renewals, and replacements) | 925.74 | 973.90 | 1,084 | 1,013 |
| Freight-train cars (repairs, renewals, and replacements) | 91.73 | 92.02 | 31,194 | 29,684 |

The equipment owned is shown in Table 21, and the capacity, the service, and the average cost of maintenance are shown in Tables Nos. 26, 27, and 28.

### Traffic Expenses.

| | 1913. | 1912. | Increase or Decrease. | Per Cent. |
|---|---|---|---|---|
| Superintendence | $516,018.75 | $509,105.29 | $6,913.46 | 1.4 |
| Outside agencies | 786,998.95 | 700,835.77 | 86,163.18 | 12.3 |
| Advertising and industrial and immigration bureaus. | 564,328.14 | 659,121.60 | —94,793.46 | 14.4 |
| Miscellaneous | 239,800.41 | 250,540.38 | —10,739.97 | 4.3 |
| Total traffic expenses... | $2,107,146.25 | $2,119,603.04 | —$12,456.79 | .6 |

Notwithstanding Traffic Expenses, as a whole, show a decrease of $12,456.79, which was brought about, primarily, by a decrease in the amount expended for advertising, yet a direct result of the separation of the Union Pacific and Southern Pacific Systems is reflected by the increase in "Outside Agencies" which is due to the establishment of separate agencies instead of joint Union Pacific-Southern Pacific agencies which were maintained prior to February 1, 1913.

As this increase covers only a period of five months, it is to be anticipated that Traffic Expenses for the ensuing fiscal year will show a much larger increase.

### Transportation Expenses.

| | 1913. | 1912. | Increase or Decrease. | Per Cent. |
|---|---|---|---|---|
| Superintendence and dispatching | $916,980.30 | $914,491.25 | $2,489.05 | .3 |
| Station expenses | 3,321,464.22 | 3,138,784.98 | 182,679.24 | 5.8 |
| Yard expenses | 2,114,718.24 | 1,973,264.07 | 141,454.17 | 7.2 |
| Fuel for yard locomotives.. | 706,056.20 | 621,037.37 | 85,018.83 | 13.7 |
| Supplies for yard locomotives | 91,788.45 | 82,925.60 | 8,862.85 | 10.7 |
| Road enginemen | 3,226,817.77 | 3,106,260.77 | 120,557.00 | 3.9 |
| Enginehouse expenses—road | 1,150,180.13 | 1,080,382.07 | 69,798.06 | 6.5 |
| Fuel for road locomotives.. | 7,450,755.10 | 6,994,777.17 | 455,977.93 | 6.5 |
| Supplies for road locomotives | 637,905.95 | 601,095.57 | 36,810.38 | 6.1 |
| Road trainmen | 3,134,115.45 | 3,011,811.37 | 122,304.08 | 4.1 |
| Train supplies and expenses | 1,312,559.38 | 1,211,200.21 | 101,359.17 | 8.4 |
| Miscellaneous | 868,870.49 | 890,276.22 | —21,405.73 | 2.4 |
| Loss, damage, and injuries. | 1,311,490.07 | 1,223,319.59 | 88,170.48 | 7.2 |
| Operating joint facilities... | *166,582.07 | *94,517.18 | —72,064.89 | ... |
| Total transportation expenses | $26,077,119.68 | $24,755,109.06 | $1,322,010.62 | 5.3 |

The increase of 5.3 per cent. in Transportation Expenses is consistent with the increased performance of freight and passenger trains, there having been an increase of 9.1 per cent. in gross revenue from rail operations.

The average net tons of freight per train increased to 552.28 tons, a gain of 2.13 per cent. Both the average car load and the average number of cars per train show creditable increases.

The increase in cost of fuel for locomotives is due partially to the prevailing high prices of coal, also to the increase of 3.49 per cent. in locomotive mileage caused by increased traffic handled.

The increase in the cost of locomotive and train service is commensurate with the larger volume of traffic moved, and to this is also due, in a measure, the increase in station and terminal service, although $23,000, or 14.9 per cent., is attributable to the higher rates of pay by reason of new wage agreements with employes.

### General Expenses.

| | 1913. | 1912. | Increase or Decrease. | Per Cent. |
|---|---|---|---|---|
| Salaries and expenses of officers, clerks and attendants | $1,374,182.02 | $1,191,464.61 | $182,717.41 | 15.3 |
| General office supplies and expenses | 156,478.62 | 151,761.08 | 4,717.54 | 3.1 |
| Law expenses | 287,955.74 | 308,052.47 | —20,096.73 | 6.5 |
| Miscellaneous | 697,535.76 | 587,247.41 | 110,288.35 | 18.8 |
| General administration joint facilities | 14,574.51 | 13,369.14 | 1,205.37 | 9.0 |
| Total general expenses. | $2,530,726.65 | $2,251,894.71 | $278,831.94 | 12.4 |

*Credit.

The increase in General Expenses is due principally to the reorganization of the several departments incident to the separation of the Union Pacific and Southern Pacific Systems February 1, 1913.

## SOUTHERN PACIFIC COMPANY STOCK.

On December 2, 1912, the Supreme Court of the United States, reversing the decision of the lower court, held that the ownership of the stock of the Southern Pacific Company by the Union Pacific was in contravention of the Sherman Anti-Trust statute, and directed the court below to require that such stock be disposed of in such manner as to effectually prevent the control of the Southern Pacific Company by or in the interest of the Union Pacific. By an additional opinion filed January 6, 1913, the court explicitly refused to sanction any disposition by the Union Pacific of such stock by sale or otherwise *pro rata* to its own stockholders, as had been allowed in the cases of the Northern Securities Company and the Standard Oil Company. The then Attorney General of the United States, as well as his successor, insisted that the Union Pacific and Southern Pacific should work out and agree upon some plan for the transfer of the control of the Central Pacific Railroad from the Southern Pacific to the Union Pacific as a part of any plan for carrying out the decree of the Supreme Court. After much negotiation, such an agreement was arrived at, but it contained provisions for the joint use of certain tracks and terminals which could not become effective without approval of the Railroad Commission of California. That Commission withheld its approval except upon conditions which neither Company could accept; and consequently it proved impossible to reach an agreement for the transfer of the control of the Central Pacific Railroad, and negotiations to that end, which extended actively over several months, had to be abandoned.

Various other plans intended to comply with the decision of the Supreme Court were devised by a special committee and considered by the Board of Directors, several of which were submitted to the Attorney General and the Court without securing approval thereof. A plan was finally formulated upon the basis of requirements and suggestions of the Court and the Attorney General, which was on June 30, 1913, approved by decree of the Court, providing for the exchange of $38,292,400, par value, of the stock of the Southern Pacific Company for $21,273,600, par value, of the preferred stock and $21,273,600, par value, of the common stock of The Baltimore & Ohio Railroad Company held by The Pennsylvania Railroad Company; and for the deposit of the remaining stock of the Southern Pacific Company held by the Union Pacific, aggregating $88,357,600, par value, with a trust company of New York, appointed by the court, as trustee, the issuance of the trustee's certificates against the stock so deposited, share for share, but under such restrictions that the trustee's certificates could not be converted into the underlying Southern Pacific stock by any owner of Union Pacific stock, and the sale of such certificates to all shareholders, preferred and common, of the Union Pacific Railroad Company, at a price and upon terms to be fixed by the Board of Directors.

The decree required the sale of such trustee's certificates not later than November 1, 1913. They were accordingly offered at $92 per share to stockholders for subscription on or before September 2, 1913. The limited time in which the decree required the Company to divest itself of the stock, and the unsatisfactory financial conditions, made it necessary to have the offer underwritten in order to insure the sale within the time fixed. The prior conditional offer of the entire holding of $126,650,000, par value, made February 12, 1913, in connection with the agreement with the Southern Pacific Company for the acquisition of the control of the Central Pacific Railroad, subsequently abandoned owing to the attitude of the Railroad Commission of California, also had to be underwritten in obedience to a requirement of the then Attorney General and a condition imposed by the Southern Pacific Company in order to assure it the price it had agreed to accept for the Central Pacific out of the proceeds of the sale of such stock.

The underwriting expenses, as well as counsel and attorneys' fees in the litigation with the Government, and all other expenses incident to the ownership of the stock of the Southern Pacific Company paid up to November 20, 1913 (and which include all expenditures on that account except compensation of the trust company and the special commissioner appointed by decree of June 30, 1913, and some comparatively small items of court cost not yet ascertained) have been charged, as paid, against the proceeds of the sale of the Southern Pacific Company stock, and the Preferred and Common stocks of The Baltimore & Ohio Railroad Company, purchased with Southern Pacific stock from The Pennsylvania Railroad Company, have been taken up on the books of the Company at approximately market value as of the date on which the transaction was consummated. At the date of this Report, the Southern Pacific Stock Account showed a profit upon the books of $16,310,010.18.

## INVESTMENT SECURITIES.

A profit of $58,855,677 was made on the sale of the stock of the Northern Pacific Railway Company, the Great Northern Railway Company, and the Northern Securities Company, and the Board of Directors of the Oregon Short Line Railroad Company, in 1911, declared a special dividend, equal to the amount of the profit, which went to the Union Pacific Railroad Company, the owner of all the stock of the Oregon Short Line Railroad Company. This appears in the Profit and Loss account published in the Annual Report for the year ended June 30, 1911 (page 33), and is explained more fully on page 16 of that report. There will be a profit of about $16,000,000 on the sale of the stock of the Southern Pacific Company which, upon final settlement of the account, will be credited to Profit and Loss, making a total profit on these two transactions of about $75,000,000. On the other hand, the market value of other investment securities owned, as shown in Table No. 9, showed, on June 30, 1913, a depreciation of about $40,780,000. Since the Northern Securities transaction has been closed and the Southern Pacific stock disposed of, and the profit on the one transaction has been and on the other will shortly be credited to Profit and Loss, it seemed proper that the book value of the other investment securities owned should be either written down to approximately their market value, or that there should be created a reserve to cover eventual depreciation, if any. Therefore, it was resolved by the Board of Directors to appropriate out of surplus and set up as a "Reserve for Depreciation of Securities" the sum of $50,000,000. Accordingly, the said amount was charged to Profit and Loss and credited to "Reserve for Depreciation of Securities" under the head of "Appropriated Surplus" as of June 30, 1913. If and when any of the securities referred to are disposed of, whatever loss, if any, may be sustained will then be charged against this reserve account. This was deemed better than the actual writing down of the securities to existing market value, because, with the fluctuations usual in the market value of such securities, the price realized in case of sales may vary materially from existing market prices.

## LAND DEPARTMENT.

Under the provisions of the Union Pacific Railroad Company's First Railroad and Land Grant Mortgage, the net proceeds from the sale of lands (*after payment of expenses and taxes*) and all sums of money received on account of interest or principal of the bonds and for dividends upon the stock of the Union Pacific Land Company are set apart and held by the trustee as a Cash Improvement and Equipment Fund to reimburse the Railroad Company for any expenditures for betterments, improvements, equipment, or for other properties not paid for out of other funds or charged to operating expenses as cost of maintenance.

The transactions in respect of the above-mentioned lands for the year are shown in detail in Tables Nos. 15, 16, 17, and 18.

The report of the Vice-President and Controller is submitted herewith.

By order of the Board of Directors,

ROBERT S. LOVETT,

*Chairman of the Executive Committee.*

## NO. 4.—GENERAL BALANCE SHEET, JUNE 30, 1913—ASSETS.

*(Excluding stocks and bonds of Union Pacific owned and all offsetting accounts.)*

| | 1913. | 1912. | INCREASE OR DECREASE. |
|---|---|---|---|
| *Property Investment:* | | | |
| INVESTMENT TO JUNE 30, 1907: | | | |
| Road | $308,952,306.58 | $308,952,306.58 | ..... |
| Equipment | 19,267,288.89 | 19,267,288.89 | ..... |
| Total | $328,219,595.47 | $328,219,595.47 | ..... |
| *Less:* | | | |
| *Receipts from improvement and equipment fund* | $20,671,091.13 | $19,771,091.13 | $900,000.00 |
| *Appropriations from income account* | 13,310,236.52 | 13,310,236.52 | ..... |
| | $33,981,327.65 | $33,081,327.65 | $900,000.00 |
| Balance | $294,238,267.82 | $295,138,267.82 | —$900,000.00 |
| INVESTMENT SINCE JUNE 30, 1907: | | | |
| Road | $202,327,290.72 | $183,535,448.06 | $18,791,842.66 |
| Equipment | 25,958,525.30 | 24,240,053.04 | 1,718,472.26 |
| General expenditures | 511,995.60 | 511,995.60 | ..... |
| | $228,797,811.62 | $208,287,496.70 | $20,510,314.92 |
| Total | $523,036,079.44 | $503,425,764.52 | $19,610.314.92 |
| *ADVANCES FOR CONSTRUCTION AND ACQUISITION OF NEW LINES | 1,937,048.65 | 1,125,411.31 | 811,637.34 |
| | $524,973,128.09 | $504,551,175.83 | $20,421,952.26 |
| *Less:* | | | |
| Reserve for accrued depreciation | 16,197,812.94 | 168,701.43 | 16,029,111.51 |
| Total | $508,775.315.15 | $504,382,474.40 | $4,392,840.75 |
| *Securities of Proprietary, Affiliated and Controlled Companies, Table No. 7:* | | | |
| UNPLEDGED | $782,284.75 | $761,083.75 | $21,201.00 |
| *Advances to these Co.'s* | 1,119,704.38 | 1,483,839.60 | —$364,135.22 |
| Total | $1,901,989.13 | $2,244,923.35 | —$342,934.22 |
| *Miscellaneous Investments:* | | | |
| PHYSICAL PROPERTY | $14,311.43 | $6,266.43 | $8,045.00 |
| SECURITIES: | | | |
| Pledged | 24,918,704.00 | 21,943,304.00 | 2,975,400.00 |
| Unpledged | 15,796,801.25 | 19,076,452.75 | —3,279,651.50 |
| *ADVANCES TO AUXILIARY COMPANIES AND COLLATERAL ENTERPRISES | 20,465,102.89 | 19,920,457.35 | 544,645.54 |
| Total | $61,194,919.57 | $60,946,480.53 | $248,439.04 |
| **Investment Securities:* | | | |
| PLEDGED | $41,970,553.68 | $102,856,511.84 | —$60,885,958.16 |
| UNPLEDGED | 217,717,288.95 | 151,257,934.21 | $66,459,354.74 |
| Total | $259,687,842.63 | $254,114,446.05 | $5,573,396.58 |
| *Working Assets:* | | | |
| CASH | $11,855,029.01 | $7,117,051.96 | $4,737,977.05 |
| Cash deposited against matured coupons | 435,681.06 | 437,638.59 | —1,957.53 |
| LOANS AND BILLS RECEIVABLE: | | | |
| Demand and time loans and deposits | 8,268,964.62 | 44,821,594.16 | —36,552,629.54 |
| Demand loans, Southern Pacific Co. | ..... | 12,000,000.00 | —12,000,000.00 |
| TRAFFIC AND CAR SERVICE BALANCES DUE FROM OTHER COMPANIES | 2,380,459.10 | 2,537,768.68 | —157,309.58 |
| NET BALANCE DUE FROM AGENTS AND CONDUCTORS | 682,198.02 | 600,890.74 | 81,307.28 |
| MISCELLANEOUS ACCOUNTS RECEIVABLE | 4,234,478.02 | 3,748,018.70 | 486,459.32 |
| MATERIALS AND SUPPLIES | 11,378,191.55 | 11,748,132.56 | —369,941.01 |
| Total | $39,235,001.38 | $83,011,095.39 | —$43,776,094.01 |
| *Accrued Income Not Due:* | | | |
| Interest | $1,249,691.68 | $1,305,601.01 | —$55,909.33 |
| Dividends | 4,495,615.00 | 4,162,041.00 | 333,574.00 |
| Total | $5,745,306.68 | $5,467,642.01 | $277.664.67 |
| *Deferred Debit Items:* | | | |
| ADVANCES: | | | |
| Union Pacific Equipment Association | $18,398,016.76 | $9,861,822.32 | $8,536,194.44 |
| Pacific Fruit Express Co. | 3,151,107.75 | 1,212,202.76 | 1,938,904.99 |
| WORKING FUNDS | 24,578.78 | 29,592.37 | —5,013.59 |
| SPECIAL DEPOSITS | 49,589.55 | 48,613.98 | 975.57 |
| CASH AND SECURITIES IN SINKING FUNDS | 365,401.60 | 320.604.06 | 44,797.54 |
| OTHER DEFERRED DEBIT ITEMS | 1,118,227.27 | 1,441,721.55 | —323,494.28 |
| Southern Pacific Co. Stock—Expenses | 1,431,593.16 | ..... | 1,431,593.16 |
| Land and town lot contracts | 1,635,044.78 | 2,081,976.39 | —446,931.61 |
| Total | $26,173,559.65 | $14,996,533.43 | $11,177,026.22 |
| *Total assets* | $902,713,934.19 | $925,163,595.16 | —$22,449,660.97 |

Except as indicated by * the Assets and Liabilities for both years are stated according to the classification of accounts prescribed by the Interstate Commerce Commission.

## NO. 4.—GENERAL BALANCE SHEET, JUNE 30, 1913—LIABILITIES.

*(Excluding stocks and bonds of Union Pacific owned and all offsetting accounts.)*

| | 1913. | 1912. | INCREASE OR DECREASE. |
|---|---|---|---|
| *Stock:* | | | |
| CAPITAL STOCK, TABLE No. 5: | | | |
| Common stock | $216,635,400.00 | $216,645,800.00 | —$10,400.00 |
| Preferred stock | 99,543,500.00 | 99,543,600.00 | —100.00 |
| Total | $316,178,900.00 | $316,189,400.00 | —$10,500.00 |
| *Mortgage, Bonded and Secured Debt:* | | | |
| FUNDED DEBT, TABLE No. 6: | | | |
| Mortgage bonds | $261,912,280.00 | $261,917,205.00 | —$4,925.00 |
| Collateral trust bonds | 45,000,000.00 | 45,000,000.00 | |
| Plain bonds, debentures and notes | 36,736,200.00 | 36,738,300.00 | —2,100.00 |
| Income bonds | 317,500.00 | 320,500.00 | —3,000.00 |
| Total | $343,965,980.00 | $343,976,005.00 | —$10,025.00 |
| *Working Liabilities:* | | | |
| LOANS AND BILLS PAYABLE: | | | |
| Southern Pacific Co. bond purchase notes | ..... | $23,740,362.22 | —$23,740,362.22 |
| TRAFFIC AND CAR SERVICE BALANCES DUE TO OTHER COMPANIES | $2,062,481.62 | 2,483,052.26 | —420,570.64 |
| AUDITED VOUCHERS AND WAGES UNPAID | 6,627,771.63 | 6,914,134.93 | —286,363.30 |
| MISCELLANEOUS ACCOUNTS PAYABLE: | | | |
| Deposits by Auxiliary Companies and Collateral Enterprises | 6,826,522.73 | 5,845,025.80 | 981,496.93 |
| Other accounts payable | 76,323.89 | 92,006.93 | —15,683.04 |
| MATURED INTEREST, DIVIDENDS AND RENTS UNPAID: | | | |
| Coupons matured but not presented | 193,850.40 | 239,327.00 | —45,476.60 |
| Coupons and interest on registered bonds due July 1 | 3,975,655.00 | 3,975,820.00 | —165.00 |
| Dividends due but uncalled for | 72,669.50 | 375,193.50 | —302,524.00 |
| Dividends payable July 1 | 5,415,845.00 | 5,416,107.50 | —262.50 |
| Interest on Southern Pacific Co. notes | ..... | 226,338.22 | —226,338.22 |
| MATURED MORTGAGE, BONDED AND SECURED DEBT UNPAID | 3,000.00 | 3,000.00 | |
| OTHER WORKING LIABILITIES | 360,829.29 | 454,985.55 | —94,156.26 |
| Total | $25,614,949.06 | $49,765,353.91 | —$24,150,404.85 |
| *Accrued Liabilities Not Due:* | | | |
| UNMATURED INTEREST, DIVIDENDS, AND RENTS PAYABLE: | | | |
| Dividends payable October 1 | $7,406,717.50 | $7,406,979.50 | —$262.00 |
| Interest accrued on bonds to June 30 | 1,484,641.19 | 1,484,786.05 | —144.86 |
| TAXES ACCRUED | 2,335,194.48 | 1,926,511.28 | 408,683.20 |
| Total | $11,226,553.17 | $10,818,276.83 | $408,276.34 |
| *Deferred Credit Items:* | | | |
| OPERATING RESERVES: | | | |
| Insurance fund | $448,302.05 | $464,378.15 | —$16,076.10 |
| OTHER DEFERRED CREDIT ITEMS | 1,475,612.96 | 1,523,920.81 | —48,307.85 |
| Contingent interest, Auxiliary Companies, and Collateral Enterprises | 670,319.28 | 377,372.45 | 292,946.83 |
| Principal of deferred payments on land and town lot contracts | 1,635,044.78 | 2,081,976.39 | —446,931.61 |
| Discount on bonds, unadjusted | ..... | 5,107,440.00 | —5,107,440.00 |
| Profit on securities sold, unadjusted | ..... | 313,702.86 | —313,702.86 |
| Total | $4,229,279.07 | $9,868,790.66 | —$5,639,511.59 |
| *Total liabilities* | $701,215,661.30 | $730,617,826.40 | —$29,402,165.10 |
| *Appropriated Surplus:* | | | |
| RESERVES FROM INCOME OR SURPLUS INVESTED IN SINKING AND REDEMPTION FUNDS. | $344,886.20 | $320,944.08 | $23,942.12 |
| *RESERVE FOR DEPRECIATION OF SECURITIES | 50,000,000.00 | ..... | 50,000,000.00 |
| Total | $50,344,886.20 | $320,944.08 | $50,023,942.12 |
| *Profit and Loss—Balance* | $151,153,386.69 | $194,224,824.68 | —$43,071,437.99 |
| Grand total | $902,713,934.19 | $925,163,595.16 | —$22,449,660.97 |

NO. 3.—PROFIT AND LOSS—JUNE 30, 1913.

DEBITS.

| | |
|---|---|
| Cost of property abandoned during the year, not to be replaced | $245,797.35 |
| Cost of surveys and construction expenditures incurred in former years on lines subsequently abandoned | 4,520.15 |
| Uncollectible accounts written off | 16,759.43 |
| Reserve for accrued depreciation | 16,007,237.55 |
| Reserve for depreciation of securities | 50,000,000.00 |
| *Balance June* 30, 1913 | 151,153,386.69 |
| Total | $217,427,701.17 |

CREDITS.

| | |
|---|---|
| *Balance June* 30, 1912 | $194,224,824.68 |
| *Balance from income account (Table No. 2)* | 11,131,995.33 |
| Difference between $2,100 face value Union Pacific R. R. Co. Twenty Year Four Per Cent, Convertible Bonds retired and cancelled and $1,200 par value common stock issued in exchange therefor | 900.00 |
| Profit from sales of securities | 552,908.23 |
| Advances to Portland & Asiatic Steamship Co. charged to profit and loss prior to July 1, 1912, repaid during the year | 14,968.96 |
| Interest accruing prior to July 1, 1912, on advances and open accounts | 123,716.41 |
| Proceeds from sale of unpledged lands and town lots | 647.92 |
| Unclaimed liabilities written off | 17,651.88 |
| Old accounts collected | 1,775.70 |
| Adjustments in accounts | 60,102.49 |
| Difference between cost to Oregon-Washington Railroad & Navigation Co. of properties acquired by it December 23, 1910, and cost thereof on books of vendor companies, as explained in page 16 | 6,190,769.57 |
| Discount on Oregon Short Line R. R. Co. Bonds charged to profit and loss prior to July 1, 1912, said bonds having been retired during the year, as explained in page 12 | 5,107,440.00 |
| Total | $217,427,701.17 |

NO. 7.—SECURITIES OWNED OF PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES, JUNE 30, 1913.

| COMPANY. | OUTSTANDING JUNE 30, 1913. | OWNED BY: Union Pacific R. R. Co. | Oregon-Washington R. R. & Nav. Co. | Total. | +Increase. —Decrease. During Year. | Of the Total Owned there are Unpledged. |
|---|---|---|---|---|---|---|
| STOCKS. | | | | | | |
| Camas Prairie Railroad | $50,000 | ..... | $25,000 | $25,000 | + $15,000 | $25,000 |
| Denver Union Terminal Railway | 30,000 | $200 | ..... | 200 | + 200 | 200 |
| Kansas City Terminal Railway | 1,000,000 | 100,000 | ..... | 100,000 | ..... | 100,000 |
| Leavenworth Depot & Railroad | 150,000 | 50,000 | ..... | 50,000 | ..... | 50,000 |
| Ogden Union Railway & Depot | 300,000 | 150,000 | ..... | 150,000 | ..... | 150,000 |
| Union Depot & Railway (Denver) | 400,000 | 240,000 | ..... | 240,000 | ..... | 240,000 |
| Total | $1,930,000 | $540,200 | $25,000 | $565,200 | + $15,200 | $565,200 |
| BONDS. | | | | | | |
| Leavenworth Depot & Railroad First Mortgage 4% | $150,000 | $63,000 | ..... | $63,000 | ..... | $63,000 |
| Northern Pacific Terminal First Mortgage 6% | 3,250,000 | 56,000 | $151,000 | 207,000 | — $5,000 | 207,000 |
| Ogden Union Railway & Depot First Mortgage 5% | 326,000 | 163,000 | ..... | 163,000 | ..... | 163,000 |
| Total | $3,726,000 | $282,000 | $151,000 | $433,000 | — $5,000 | $433,000 |

NOTE.—None of the above securities are owned by the Oregon Short Line and none are pledged.

NO. 8.—SECURITIES OWNED OF AUXILIARY COMPANIES AND COLLATERAL ENTERPRISES, JUNE 30, 1913.

| COMPANY. | OUTSTANDING JUNE 30, 1913. | OWNED BY: Union Pacific R. R. Co. | Oregon Short Line R. R. Co. | Oregon-Washington R. R. & Nav. Co. | Total. | +Increase. —Decrease. During Year. | Of the Total Owned there are Pledged. | Unpledged. |
|---|---|---|---|---|---|---|---|---|
| STOCKS. | | | | | | | | |
| AUXILIARY COMPANIES, | | | | | | | | |
| Leavenworth & Topeka Railway | $50,000 | $25,000 | ..... | ..... | $25,000 | ..... | ..... | $25,000 |
| St. Joseph & Grand Island Railway—Common | 4,600,000 | 4,168,700 | ..... | ..... | 4,168,700 | + $92,300 | ..... | 4,168,700 |
| " " " " " First Preferred. | 5,500,000 | 2,878,740 | ..... | ..... | 2,878,740 | + 334,100 | ..... | 2,878,740 |
| " " " " " Second Pref'd. | 3,500,000 | 2,962,750 | ..... | ..... | 2,962,750 | + 86,400 | ..... | 2,962,750 |
| San Pedro, Los Angeles & Salt Lake Railroad | 25,000,000 | ..... | $12,500,000 | ..... | 12,500,000 | ..... | ..... | 12,500,000 |
| Utah Light & Railway—Common | 1,942,550 | ..... | 1,853,600 | ..... | 1,853,600 | ..... | ..... | 1,853,600 |
| Preferred | 3,863,175 | ..... | 3,842,875 | ..... | 3,842,875 | ..... | ..... | 3,842,875 |
| Yakima Valley Transportation | 500,000 | ..... | 500,000 | ..... | 500,000 | + 300 | ..... | 500,000 |
| Union Pacific Equipment Association | 100,000 | 100,000 | ..... | ..... | 100,000 | ..... | ..... | 100,000 |
| Pacific Fruit Express | 10,800,000 | 5,400,000 | ..... | ..... | 5,400,000 | ..... | ..... | 5,400,000 |
| San Francisco & Portland Steamship | 500,000 | ..... | ..... | $500,000 | 500,000 | ..... | ..... | 500,000 |
| COLLATERAL ENTERPRISES. | | | | | | | | |
| California Improvement | 2,599,000 | ..... | 1,299,500 | ..... | 1,299,500 | ..... | ..... | 1,299,500 |
| Los Angeles Terminal Land | 300,000 | ..... | 150,000 | ..... | 150,000 | ..... | ..... | 150,000 |
| Green River Water Works | 225,000 | 225,000 | ..... | ..... | 225,000 | ..... | ..... | 225,000 |
| McKeen Motor Car | 1,000,000 | 550,000 | ..... | ..... | 550,000 | ..... | ..... | 550,000 |
| Oregon & Washington Railroad | 1,000,000 | ..... | 999,300 | ..... | 999,300 | ..... | ..... | 999,300 |
| Rattlesnake Creek Water | 78,300 | 78,300 | ..... | ..... | 78,300 | ..... | ..... | 78,300 |
| Riverside Homestead | 100,000 | 100,000 | ..... | ..... | 100,000 | ..... | ..... | 100,000 |
| Short Line Land & Improvement | 100,000 | ..... | 50,000 | ..... | 50,000 | ..... | ..... | 50,000 |
| Union Land | 10,000 | 10,000 | ..... | ..... | 10,000 | ..... | ..... | 10,000 |
| Union Pacific Coal | 5,000,000 | 5,000,000 | ..... | ..... | 5,000,000 | ..... | ..... | 5,000,000 |
| Union Pacific Land | 100,000 | 100,000 | ..... | ..... | 100,000 | ..... | $99,400 | 600 |
| Union Pacific Water | 500 | 500 | ..... | ..... | 500 | ..... | ..... | 500 |
| Total | $66,868,525 | $21,598,990 | $21,195,275 | $500,000 | $43,294,265 | +$513,100 | $99,400 | $43,194,865 |
| BONDS. | | | | | | | | |
| AUXILIARY COMPANIES, | | | | | | | | |
| Leavenworth & Topeka Railway—First Mortgage 4% | $250,000 | $125,000 | ..... | ..... | $125,000 | ..... | ..... | $125,000 |
| Payette Valley Railroad—First Mortgage 5% | 44,000 | ..... | $44,000 | ..... | 44,000 | ..... | ..... | 44,000 |
| Payette Valley Extension Railroad—First Mortgage 5% | 140,000 | ..... | 140,000 | ..... | 140,000 | ..... | ..... | 140,000 |
| San Pedro, Los Angeles & Salt Lake R. R.—First Mortgage 4% | 55,155,000 | ..... | 27,577,000 | ..... | 27,577,000 | ..... | $27,577,000 | |
| Utah Light & Power—Consolidated Mortgage 4% | 1,115,000 | ..... | 2,000 | ..... | 2,000 | ..... | ..... | 2,000 |
| Utah Light & Railway—Consolidated Mortgage 5% | 1,485,000 | ..... | 993,000 | ..... | 993,000 | ..... | ..... | 993,000 |
| " " " " Collateral Trust 6% | ..... | ..... | ..... | ..... | ..... | — $5,000 | | |
| COLLATERAL ENTERPRISES. | | | | | | | | |
| Green River Water Works—First Mortgage 6% | 194,000 | 194,000 | ..... | ..... | 194,000 | ..... | ..... | 194,000 |
| Rattlesnake Creek Water—First Mortgage 6% | 146,000 | 146,000 | ..... | ..... | 146,000 | ..... | ..... | 146,000 |
| Union Pacific Coal—First Mortgage 5% | 5,000,000 | 3,035,000 | ..... | ..... | 3,035,000 | — 319,000 | ..... | 3,035,000 |
| Union Pacific Land—First Mortgage 4% | 5,029,000 | 5,029,000 | ..... | ..... | 5,029,000 | — 167,840 | 5,029,000 | |
| San Francisco & Portland Steamship — Purchase Money Notes 6% | 660,000 | ..... | ..... | $660,000 | 660,000 | ..... | ..... | 660,000 |
| Total | ..... | $8,529,000 | $28,756,000 | $660,000 | $37,945,000 | —$491,840 | $32,606,000 | $5,339,000 |

## NO. 9.—INVESTMENT SECURITIES OWNED, JUNE 30, 1913.

| Company. | Total Outstanding June 30, 1913. | Owned by: Union Pacific R. R. C. | Oregon Short Line R. R. Co. | Total. | +Increase. —Decrease. During Year. | Of the Total Owned there are: Pledged. | Unpledged. |
|---|---|---|---|---|---|---|---|
| **STOCKS.** | | | | | | | |
| Baltimore & Ohio Railroad. | | | | | | | |
| Common Stock | $151,590,092 | ..... | $32,334,200 | $32,334,200 | ..... | $16,425,400 | $15,908,800 |
| Preferred Stock | 58,873,974 | ..... | 7,206,400 | 7,206,400 | ..... | 7,206,400 | |
| Chicago & Alton Railroad. | | | | | | | |
| Preferred Stock | 19,544,000 | $10,343,100 | ..... | 10,343,100 | ..... | ..... | 10,343,100 |
| Chicago & Northwestern Railway. | | | | | | | |
| Common Stock | 130,117,213 | ..... | 4,018,700 | 4,018,700 | ..... | ..... | 4,018,700 |
| Chicago, Milwaukee & St. Paul Railway. | | | | | | | |
| Preferred Stock | 116,274,900 | ..... | 1,845,000 | 1,845,000 | ..... | ..... | 1,845,000 |
| Illinois Central Railroad. | | | | | | | |
| Capital Stock | 109,296,000 | 22,500,000 | ..... | 22,500,000 | ..... | ..... | 22,500,000 |
| New York Central & Hudson River Railroad. | | | | | | | |
| Capital Stock | 222,729,300 | ..... | 17,857,100 | 17,857,100 | ..... | 12,000,000 | 5,857,100 |
| Railroad Securities. | | | | | | | |
| Common stock | 3,486,420 | 3,484,920 | ..... | 3,484,920 | +$500 | ..... | 3,484,920 |
| Preferred Stock | 1,936,900 | 1,936,900 | ..... | 1,936,900 | ..... | ..... | 1,936,900 |
| Southern Pacific. | | | | | | | |
| Common Stock | 272,672,405 | ..... | 126,650,000 | 126,650,000 | ..... | ..... | 126,650,000 |
| Total | ..... | $38,264,920 | $189,911,400 | $228,176,320 | +$500 | $35,631,800 | $192,544,520 |
| **BONDS.** | | | | | | | |
| Chicago & Alton Railroad. | | | | | | | |
| General Mortgage 6% | $11,880,000 | $5,940,000 | ..... | $5,940,000 | +$5,940,000 | ..... | $5,940,000 |
| Chicago, Milwaukee & St. Paul Ry. | | | | | | | |
| Convertible 4½% | ..... | ..... | $387,400 | 387,400 | +110,700 | ..... | 387,400 |
| South Pacific Coast Railway. | | | | | | | |
| First Mortgage 4% | ..... | ..... | ..... | ..... | —270,000 | | |
| Southern Pacific. | | | | | | | |
| 4% Twenty-Year Convertible | 81,151,000 | ..... | 927,000 | 927,000 | ..... | ..... | 927,000 |
| 4½% Twenty-Year Gold | 227,000 | ..... | 66,000 | 66,000 | ..... | ..... | 66,000 |
| 4% (C. P. Stock Collateral) | 34,218,500 | 6,399,000 | ..... | 6,399,000 | +950,000 | ..... | 6,399,000 |
| San Francisco Terminal First Mortgage 4% | 24,984,500 | 6,000,000 | ..... | 6,000,000 | ..... | ..... | 6,000,000 |
| Southern Pacific Railroad. | | | | | | | |
| First Refunding Mortgage 4% | 137,307,000 | 14,568,000 | ..... | 14,568,000 | ..... | ..... | 14,568,000 |
| Pacific Mail Steamship. | | | | | | | |
| Purchase Money Notes 6% | 3,323,125 | ..... | 3,323,125 | 3,323,125 | —548,750 | ..... | 3,323,125 |
| Total | ..... | $32,907,000 | $4,703,525 | $37,610,525 | +$6,181,950 | ..... | $37,610,525 |

None of the above securities are owned by the Oregon-Washington R. R. & Navigation Co.

## NO. 24.—OPERATING RESULTS AND STATISTICS FOR THE YEAR ENDED JUNE 30, 1913.

| | 1913. | 1912. | Increase or Decrease. | Per Cent. |
|---|---|---|---|---|
| Aver. miles of road oper.. | 7,348.97 | 7,149.87 | 199.10 | 2.8 |
| **REVENUE AND EXPENSES.** | | | | |
| *(Rail lines including outside operations.)* | | | | |
| Total revenues | $93,638,458.59 | $85,977,608.78 | $7,660,849.81 | 8.9 |
| Total expenses | 54,030,216.40 | 50,389,406.92 | 3,640,809.48 | 7.2 |
| Revenues over expenses. | 39,608,242.19 | 35,588,201.86 | 4,020,040.33 | 11.3 |
| Operating ratio | 57.70 | 58.61 | —.91 | 1.6 |
| *(Rail lines excluding outside operations.)* | | | | |
| Total operating revenue. | $91,810,306.79 | $84,180,096.67 | $7,630,210.12 | 9.1 |
| Total operating expenses | 52,097,567.31 | 48,533,320.24 | 3,564,247.07 | 7.3 |
| Revenues over expenses. | 39,712,739.48 | 35,646,776.43 | 4,065,963.05 | 11.4 |
| Operating ratio | 56.74 | 57.65 | —.91 | 1.6 |
| Total rev. per m. of road | $12,492.95 | $11,773.65 | $719.30 | 6.1 |
| Total exp. per m. of road | 7,089.10 | 6,788.00 | 301.10 | 4.4 |
| Rev. over exp. per mile of road | 5,403.85 | 4,985.65 | 418.20 | 8.4 |
| **FREIGHT STATISTICS.[1]** | | | | |
| Rev. freight train miles | 14,605,254 | 13,443,329 | 1,161,925 | 8.6 |
| Total rev. and non-rev. freight train miles | 14,684,230 | 13,498,361 | 1,185,869 | 8.8 |
| Rev. freight loco. miles[2]. | 16,434,854 | 15,071,300 | 1,363,554 | 9.0 |
| Rev. and non-rev. freight locomotive miles[2] | 16,799,410 | 15,374,413 | 1,424,997 | 9.3 |
| Loaded freight car miles, rev. and non-revenue | 360,105,496 | 327,136,290 | 32,969,206 | 10.1 |
| Total freight car miles, rev. and non-revenue | 489,818,009 | 446,709,556 | 43,108,453 | 9.7 |
| Tons of rev. fr't carried[3] | 16,456,182 | 14,709,164 | 1,747,018 | 11.9 |
| Tons of comp. fr't car.[5] | 7,466,831 | 7,424,334 | 42,497 | .6 |
| Ton miles, rev. freight[3] | 6,283,029,209 | 5,356,162,375 | 926,866,834 | 17.3 |
| Ton miles, company fr't[5] | 1,827,004,018 | 1,952,885,767 | —125,881,749 | 6.4 |
| Gross ton miles (cars and contents) all freight[4] | 17,666,532,287 | 16,010,160,799 | 1,656,371,488 | 10.3 |
| Net ton miles, all fr't[6] | 8,212,734,287 | 7,456,255,351 | 756,478,936 | 10.1 |
| *Av. rev. per ton m. (c'ts)*[3] | .971 | 1.005 | —.034 | 3.4 |
| *Av. dist. hauled per ton (miles)*[3] | 381.80 | 364.14 | 17.66 | 4.8 |
| *Av. rev. tons per rev. freight-train mile*[4] | 437.22 | 409.38 | 27.84 | 6.8 |
| *Av. rev. per rev. freight-train mile* | $4.18 | $4.01 | $0.17 | 4.2 |
| *Av. gross tons (cars and contents) per fr't-loco. mile*[4] | 1,051.62 | 1,041.35 | 10.27 | 1.0 |
| *Av. gross tons (cars and cont'ts) per fr't-tr'n m.*[6] | 1,203.10 | 1,186.08 | 17.02 | 1.4 |
| *Av. net tons per freight-train mile*[6] | 559.29 | 552.38 | 6.91 | 1.3 |
| *Av. tons per loaded car mile*[6] | 22.81 | 22.79 | .02 | .1 |
| *Percentage of loaded to total car miles* | 73.52 | 73.23 | .29 | .4 |
| **PASSENGER STATISTICS.[7]** | | | | |
| Rev. pass. train miles[8] | 13,945,671 | 13,898,698 | 46,973 | .3 |
| Mail and exp. train miles | 1,201,614 | 1,536,457 | —334,843 | 21.8 |
| Total pass. train miles (including non-revenue) | 15,230,429 | 15,433,505 | —203,076 | 1.3 |
| Rev. pass. loco. miles[2] | 16,037,918 | 16,550,066 | —512,148 | 3.1 |
| Total rev. and non-rev. pass. loco. miles[2] | 16,249,726 | 16,771,881 | —522,155 | 3.1 |
| Rev. car miles—pass. cars only | 66,519,072 | 66,247,214 | 271,858 | .4 |
| Rev. car miles—mail, bag., exp. and dining | 40,510,897 | 41,960,599 | —1,449,702 | 3.5 |
| Total pass. train car miles (including non-rev.) | 107,194,800 | 108,425,052 | —1,230,252 | 1.1 |
| Rev. passengers carried | 8,563,262 | 8,194,026 | 369,236 | 4.5 |
| Rev. pass's carried 1 mile | 903,046,763 | 886,336,274 | 16,710,489 | 1.9 |
| *Av. rev. per pass. mile (cents)* | 2.243 | 2.194 | .049 | 2.2 |
| *Av. distance hauled per passenger (miles)* | 105.46 | 108.17 | —2.71 | 2.5 |
| *Av. rev. per pass.-train mile—passengers only* | $1.45 | $1.40 | $0.05 | 3.6 |
| *Av. total rev. per pass.-train mile* | $1.72 | $1.60 | $0.12 | 7.5 |
| *Av. cars per pass.-train mile* | 7.04 | 7.03 | .01 | .1 |
| *Av. passengers per pass.-train mile* | 64.75 | 63.77 | .98 | 1.5 |
| *Av. pass's per car mile* | 13.58 | 13.38 | .20 | 1.5 |
| **MISCELLANEOUS.** | | | | |
| Av. cost of maint. of way and struct. per mile of main tracks | $1,294.74 | $1,207.87 | $86.87 | 7.2 |
| Av. cost of repairs and replacements per loco. per annum | 4,051.55 | 3,723.57 | 327.98 | 8.8 |
| Av. cost of repairs and replacements per pass.-train car per annum | 925.74 | 973.90 | —$48.16 | 4.9 |
| Av. cost of repairs and replacements per fr't-train car per annum | 91.73 | 92.02 | —29 | .3 |

Note: [1]Mixed trains included in freight train performance; special train service not included.

[2]Including light, helper, etc.

[3]Based on waybill tonnage, commercial freight only.

[4]Based on conductors' tonnage, less waybill tonnage covering company freight.

[5]Based on waybill tonnage.

[6]Based on conductors' tonnage, including company freight.

[7]Mixed train statistics included, except under train and locomotive miles. Motor cars and special train service excluded.

[8]Except trains run exclusively for mail and express.